Gas Journal

VOL. 291. 109th YEAR. LONDON, AUGUST 7, 1957. Nº 4908. PRICE 1/6

For Mechanical Handling Plant

PUBLIC LIBRARY
AUG 24 1957
DETROIT

Latest design of ROTASIDE TIPPLER for wagons up to 35 tons gross.

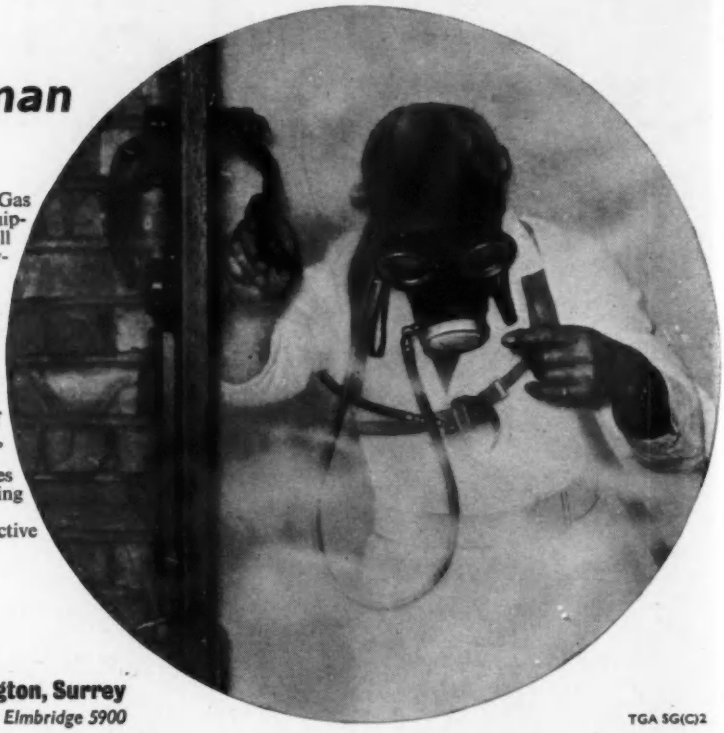
Note :—
Sturdy construction and clean lines.
Gear Drive throughout—No ropes employed.
Pivot Bearing each side of each sector.

... Consult

STRACHAN & HENSHAW LTD

STEELHOIST WORKS · BRISTOL, 2 · TEL: 78331

SAFER ...
with Siebe, Gorman



IN GASEOUS ATMOSPHERES, in Chemical, Gas and Refrigerating Plant, Siebe, Gorman equipment safeguards life and health. It covers all routine and emergency requirements, involving repairs, inspection and rescue.
Here are some typical applications:
SELF-CONTAINED BREATHING APPARATUS. Compressed air and oxygen types with durations from ½ hour to 2 hours.
RESPIRATORS of the filter type. "Puretha" Mark IV and "Gaspro" Gas Respirators. Also dust and fume masks.
SMOKE AND GAS HELMETS AND MASKS of the fresh air type. "Spirelmo", "Bloman", "Antipoys", etc.
RESUSCITATION APPARATUS. Oxygen types for asphyxia, electric shock, etc., including "Novox" and "Novita".
GAS DETECTION APPARATUS and Protective Clothing of all types.

Established 1819

SIEBE GORMAN & CO. LTD. LONDON
EVERYTHING FOR SAFETY EVERYWHERE

Neptune Works, Davis Rd., Chessington, Surrey
Telegrams: Siebe, Chessington *Telephone: Elmbridge 5900*

TGA SG(C)2

The
DONKIN HANSON
AUTO-PILOT GOVERNOR
FOR USE WITH STATION GOVERNORS

THIS PILOT GOVERNOR IS OPERATED BY AN EIGHT-DAY CLOCK, AND CHANGES THE PRESSURE TO MEET PEAK LOADS, ACCORDING TO REQUIREMENTS. A DIFFERENT LINE CAN BE GIVEN FOR EACH DAY OF THE WEEK IF REQUIRED.

The **BRYAN DONKIN CO LTD** · Chesterfield
LONDON MANCHESTER MEMBERS OF THE SOCIETY OF BRITISH GAS INDUSTRIES

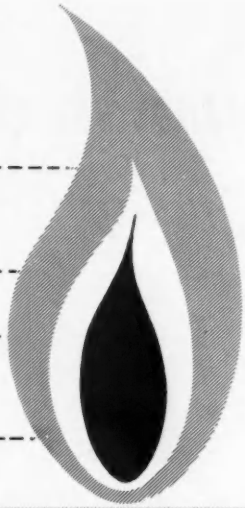
INDUSTRIAL AND DOMESTIC THERMOSTATS

REMOTE CONTROL VALVES

SMALL GAS FITTINGS

FLAME FAILURE EQUIPMENT

MAIN COCKS



GAS CONTROL

Sperson TRADE MARK

SPERRYN & CO. LTD.

MOORSOM STREET, BIRMINGHAM 6. Phone: Aston Cross 4011 (5 lines)
LONDON ADDRESS: 23 GT. SUFFOLK ST. LONDON S.E.1. Phone: Waterloo 6418

PRODUCT OF Radiation Ltd

GEORGE GLOVER & CO. LTD.

GAS METERS

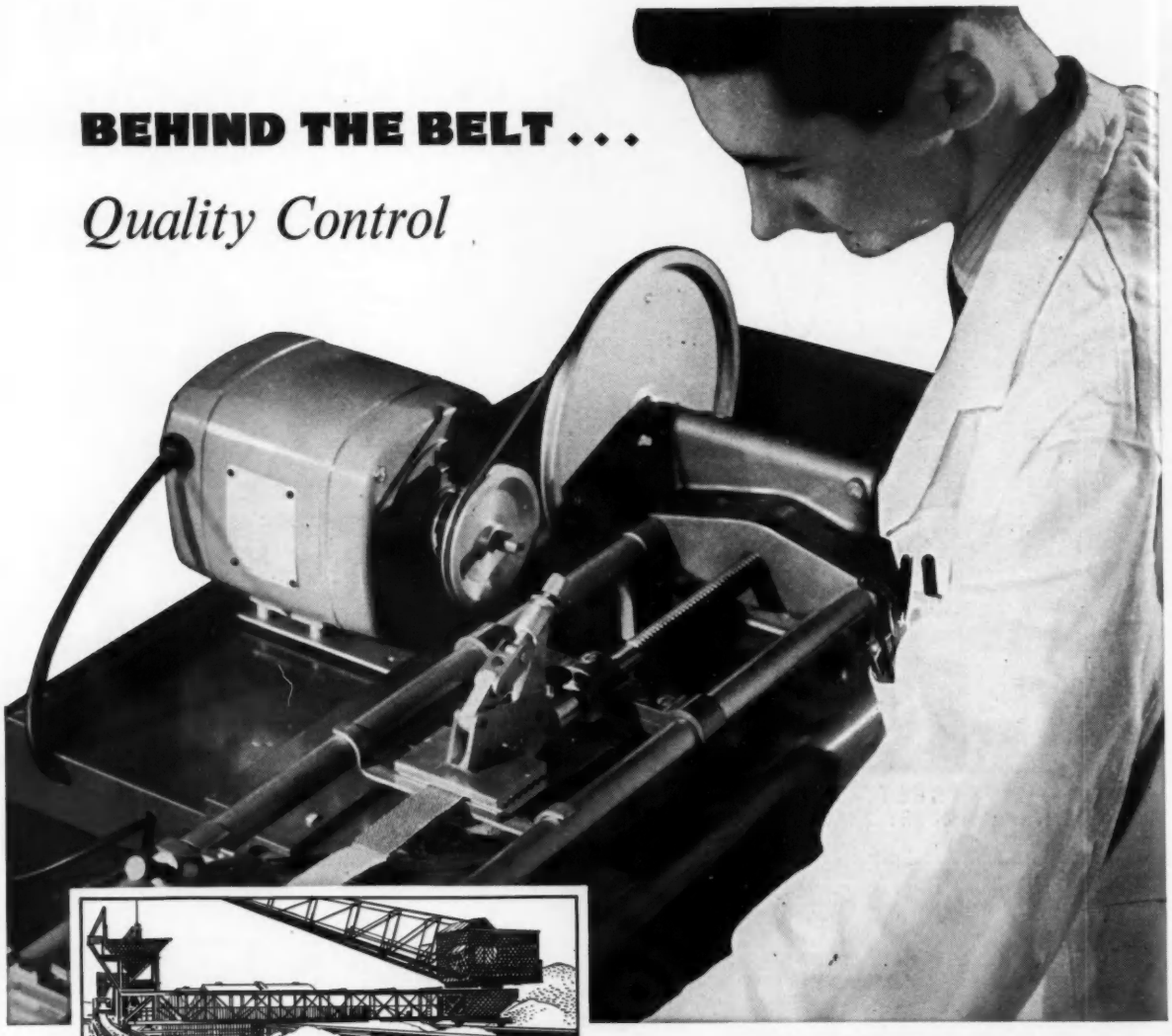
maintain their lead
in Design and Quality

GEORGE GLOVER & CO. LTD., RANELAGH WORKS, 122 KINGS ROAD, CHELSEA, LONDON, S.W.3.

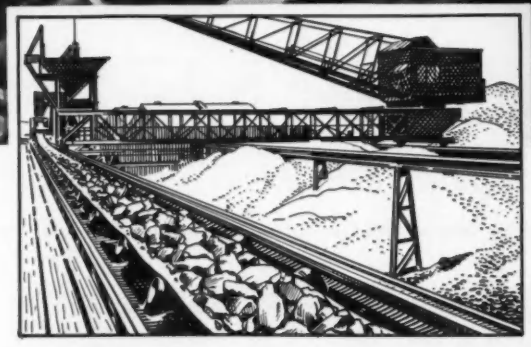
A

BEHIND THE BELT . . .

Quality Control



Excellent ply-adhesion is a characteristic feature of every Silvertown conveyor belt. Here, on this precision instrument, belting is subjected to stringent ply-separation tests.



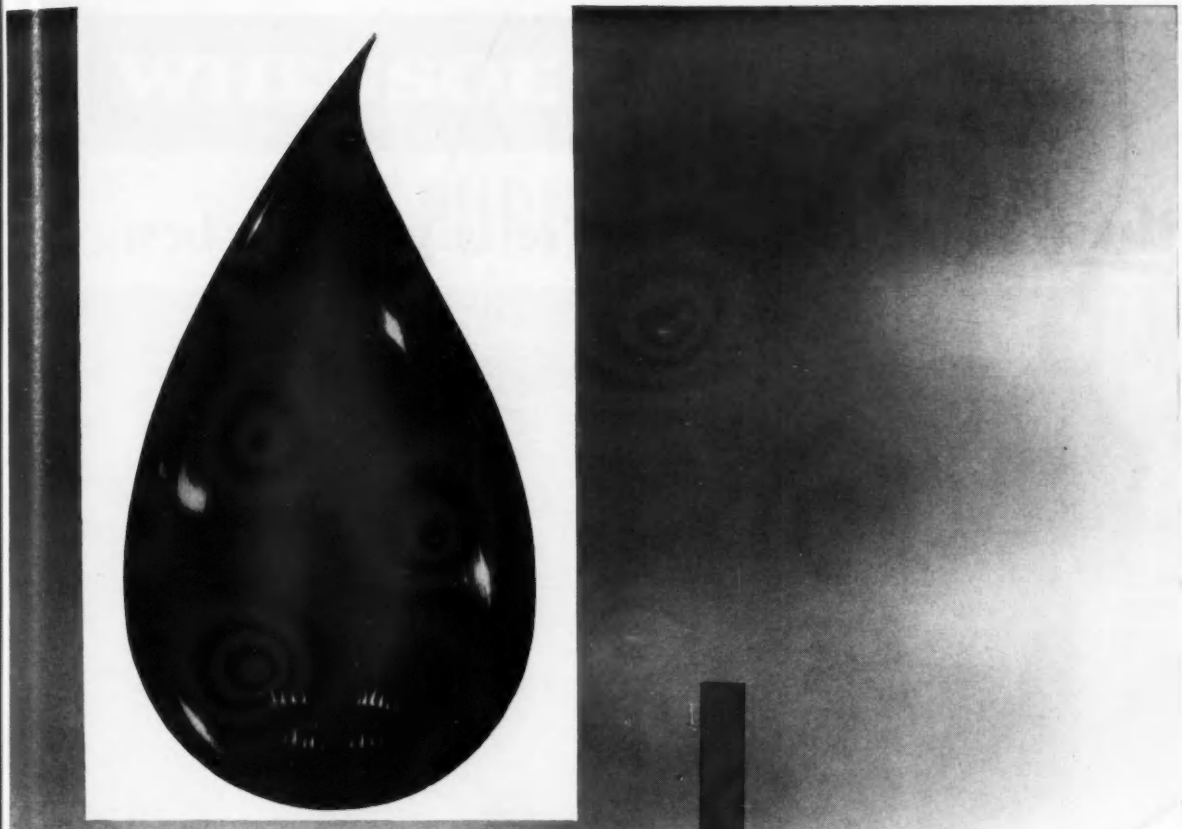
THERE'S an uncompromising attitude towards quality at Silvertown . . . an insistence that the highest standards shall be the only standards—and that efficient methods of quality control shall be consistently applied to maintain them. What these techniques of quality control put into the manufacture of Silvertown conveyor belting comes out, of course, in the performance of the finished product . . . in longer and more economical life, in the efficiency of compounds specially devised to withstand hot, oily, and abrasive loads, to provide the maximum of fire-resistant and anti-static properties. There can be no better assurance of first-class " on the job " performance than the stringent and consistent methods of quality control that stand behind every Silvertown conveyor belt. . . .

Silvertown CONVEYOR BELTING

can carry your load

SILVERTOWN RUBBER COMPANY LTD
Herga House, Vincent Square, London S.W.1

D 1336



SEGAS

Catalytic Oil-Gas Process

THE POWER-GAS CORPORATION LTD

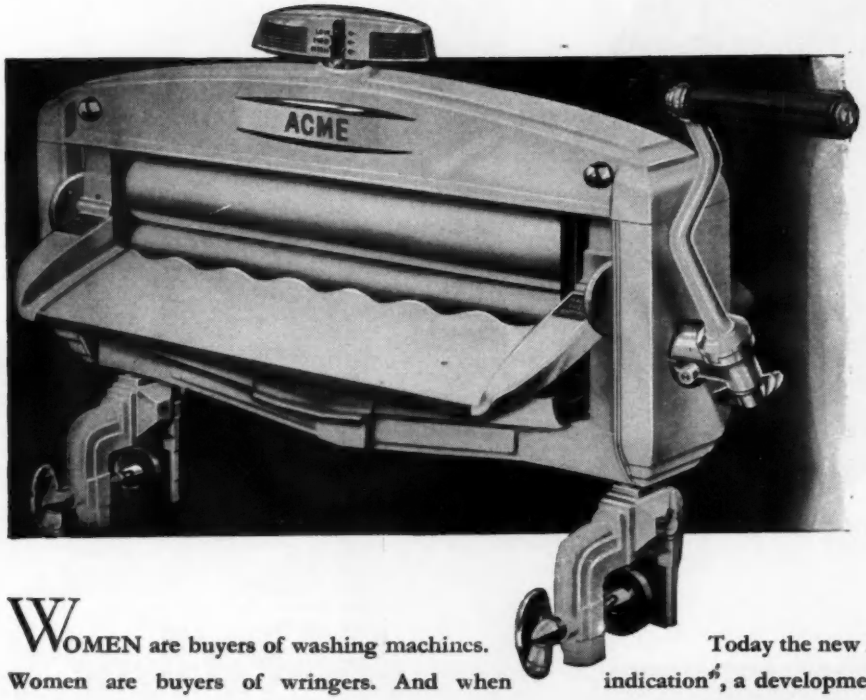
(PARENT COMPANY OF THE POWER-GAS GROUP)

STOCKTON-ON-TEES AND LONDON

AUSTRALIA · CANADA · INDIA · FRANCE · SOUTH AFRICA

3·9

When washing machines are Acme-fitted **then** women know they're buying the best . . .



WOMEN are buyers of washing machines. Women are buyers of wringers. And when women think of wringers they think of the Acme. So when your machines are Acme-fitted your customers know that they must be, like the Acme, the best on the market.

Seventy years of good, solid British manufacturing, skill, research, and experience stand behind each Acme—and generations of women know this to be true. Acme is the perfect expression of real and continuous progress in the history of wringing. Thus, every feature for which Acme is famous, has sprung from a known need; has been tested, tried and found successful before it leaves the factory.

Today the new Acme has "pressure indication", a development which, by assuring the correct pressure for every kind of fabric, takes the guesswork out of wringing. Silks, cottons, woollens, linens, now receive exactly the right pressure needed to extract water, expel embedded dirt and preserve the life of each fabric. Thus wringing is made simpler and easier.

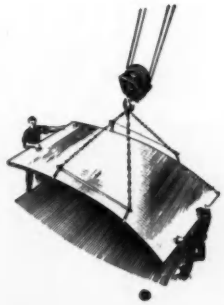
Acme does a better job, lasts longer and gives the best results. That's why Acme's reputation is world wide. That's why more than four million women have chosen an Acme in preference to all others. That's why, when your washing machines are Acme-fitted, women know they're buying the best.

ACME WRINGERS LIMITED DAVID STREET GLASGOW SE

WHESSOE

PURIFIERS AT JERSEY

This set of five welded mild steel overhead purifier boxes were built by Whessoe for the Jersey Gas Light Co. Ltd.
The plant which was installed in a former retort-house, has a capacity of 3 million cubic feet per day.
The boxes each contain two 2′ 6″ deep layers of oxide.
Special attention was given to the structural design of the plant to provide easy and unobstructed access with ample headroom to the bottom discharge chutes and oxide elevator within the confines of the building. The photograph shows the resulting clean design and illustrates the advantages of welded construction.



WHESSOE LIMITED, Darlington, Co. Durham Telephone: Darlington 5315
London Office: 25 Victoria Street, London, S.W.1 Telephone: Abbey 3881

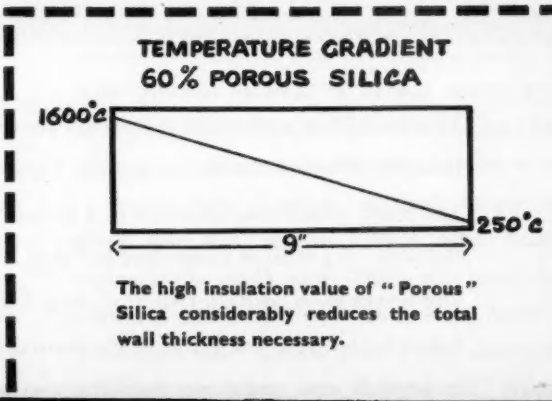
W96/CHWR

CONSETT POROUS SILICA

A really high-temperature INSULATION...

- Developed and manufactured by the Consett Iron Company Limited, "Porous" Silica Insulating Bricks have become established as an important addition to the existing range of refractories.
- Possessing the advantages of a normal silica brick combined with high thermal efficiency, "Porous" Silica offers to the furnace builder a spalling resistant silica refractory suitable for hot-face insulation at high temperatures.
- Already in wide use in the glass industry for roof insulation "Porous" Silica Brick is also suitable for the construction of kiln roofs and side walls where its light weight and insulating properties are important factors in design and service.
- "Porous" Silica Bricks are made in two grades, 60% and 50% porosity, the latter possessing a higher mechanical strength, rendering it the most suitable for constructional work.

Further information will be gladly supplied on request.



The high insulation value of "Porous" Silica considerably reduces the total wall thickness necessary.

CONSETT IRON CO.
LIMITED
CONSETT · CO. DURHAM · ENGLAND

Telephone: Consett 341 (12 lines) Telegrams: STEEL PHONE. Consett.

NOW!

.. every coat *positively* rust-inhibiting !

BETTER PROTECTION..LONGER LIFE..LOWER UPKEEP COSTS!

These desirable features are now a reality for you!

Atlas now offers you a new range of Undercoats which not only give "build" to the ultimate paint film, but which are themselves positively rust-inhibiting! Their corrosion resistance has been proved by laboratory tests and prolonged exposure trials. Now, every coat . . . Primer, **UNDERCOAT** and Finish . . . is positively rust-inhibiting, each adding its quota to the formation of a tough, durable paint film!

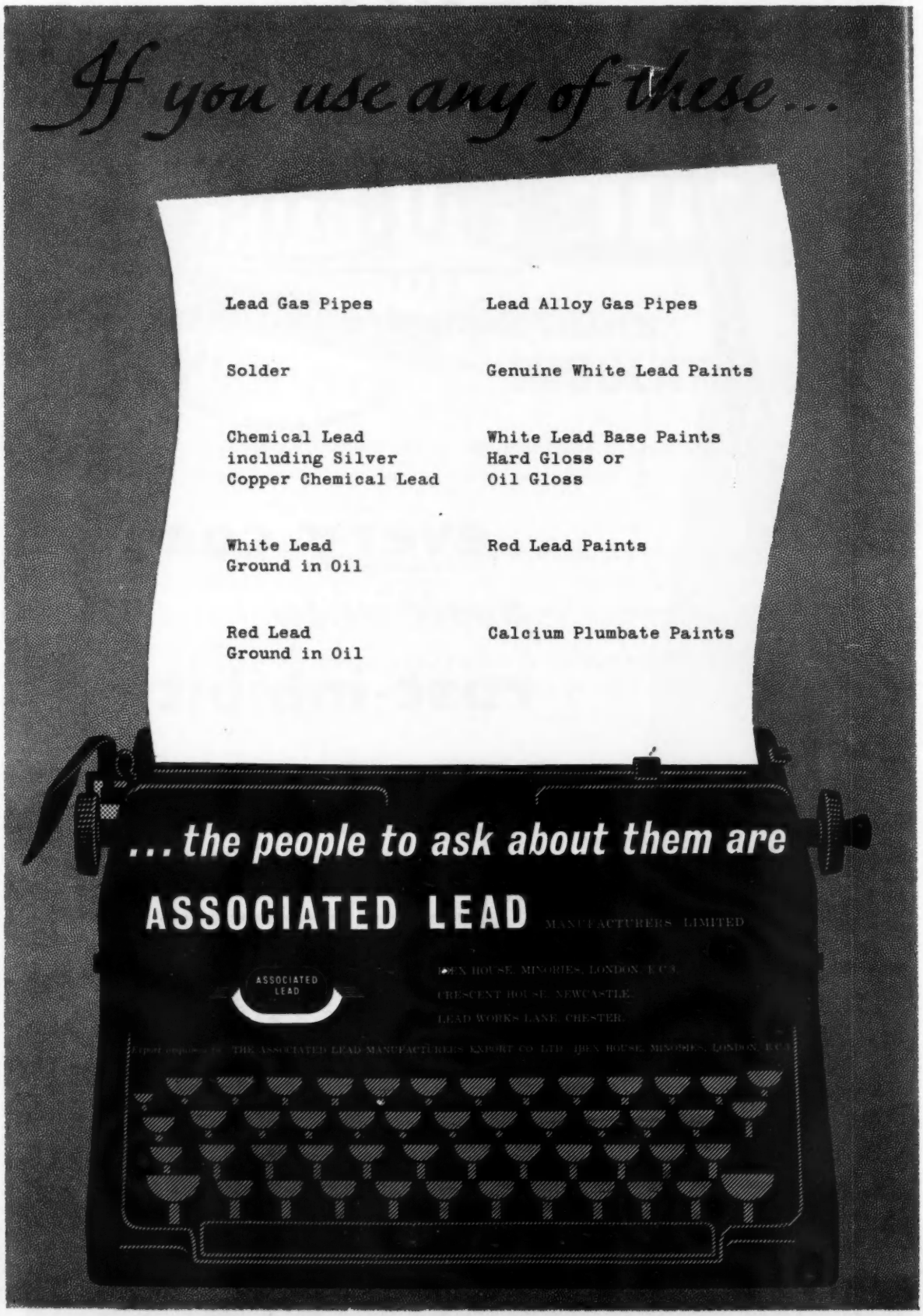
● Send now for colour card and particulars of these money savers!

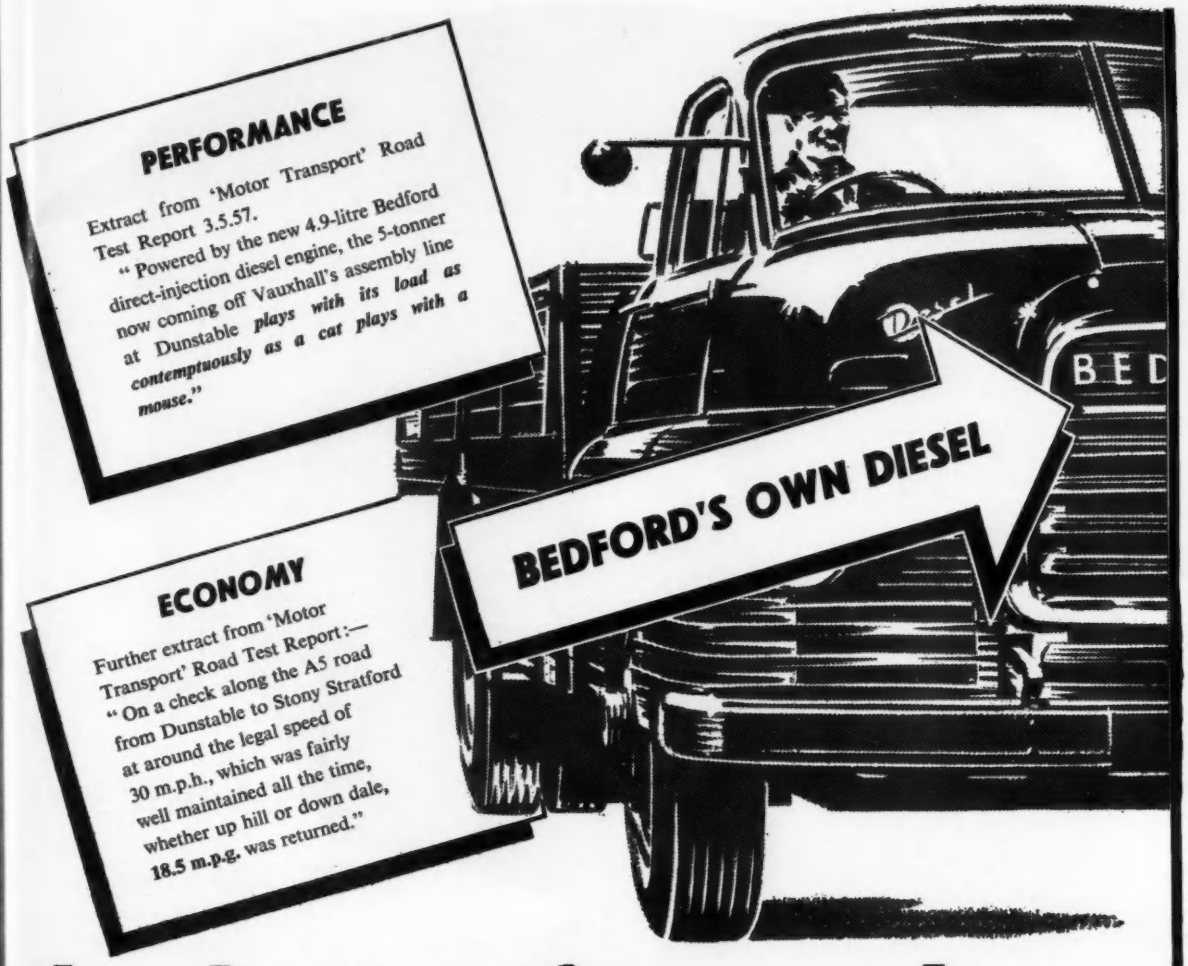
ATLAS RUSKILLA
The Paints of Stamina

IRON & STEEL PRESERVATIVE PAINTS

ATLAS PRESERVATIVE CO. LTD., ERITH, KENT 'Phone: ERITH 2255 (3 lines) 'Grams: Deoxydizer, Erith

TAS/AS.157


If you use any of these...
Lead Gas Pipes
Lead Alloy Gas Pipes
Solder
Genuine White Lead Paints
Chemical Lead including Silver Copper Chemical Lead
White Lead Base Paints Hard Gloss or Oil Gloss
White Lead Ground in Oil
Red Lead Paints
Red Lead Ground in Oil
Calcium Plumbate Paints
...the people to ask about them are
ASSOCIATED LEAD MANUFACTURERS LIMITED
ASSOCIATED LEAD
IDEN HOUSE, MINORIES, LONDON, E.C.3
CRESCENT HOUSE, NEWCASTLE
LEAD WORKS LANE, CHESTER
Export enquiries to THE ASSOCIATED LEAD MANUFACTURERS EXPORT CO. LTD. IDEN HOUSE, MINORIES, LONDON, E.C.3


PERFORMANCE
Extract from 'Motor Transport' Road Test Report 3.5.57.
" Powered by the new 4.9-litre Bedford direct-injection diesel engine, the 5-tonner now coming off Vauxhall's assembly line at Dunstable plays with its load as contemptuously as a cat plays with a mouse."
ECONOMY
Further extract from 'Motor Transport' Road Test Report:—
" On a check along the A5 road from Dunstable to Stony Stratford at around the legal speed of 30 m.p.h., which was fairly well maintained all the time, whether up hill or down dale, 18.5 m.p.g. was returned."
BEDFORD'S OWN DIESEL
Diesel
BED

A glutton for work...

BUT FRUGAL WITH FUEL

The figures show that power has not been sacrificed to economy — or achieved at the expense of high fuel consumption. The Bedford diesel is designed to maintain high average speeds on today's trunk roads. Its economy does not end with its low fuel consumption, either. It has long-life features normally found only in the highest-priced diesels. Its practical, accessible design makes for low upkeep costs. And it is built at Dunstable, Britain's newest plant, where up-to-the-minute production methods increase precision and bring down costs.

This is the diesel unit for the new range of Bedford normal and forward control 4-ton, 5-ton and 6-ton trucks. It is the most modern 6-cylinder direct-injection diesel on the market and top value for money. *Full particulars from your local Bedford dealer, or write for literature to Vauxhall Motors Ltd., Luton, Beds.*

CUT THE COST OF POWER WITH...

Bedford

Introducing

Designed for use in the building of Vertical Retorts, "THERMAX" bricks differ considerably from other clay-bonded siliceous materials by reason of their much higher bulk density with lower porosity and permeability. These improvements have been obtained by modification of composition and grading, by the development of a special pressing technique. A continuous and accurate control of the density is kept throughout the process. The result is a retort brick giving reduced slag erosion and flaking which permits retorts to be built and operated without joint leakages.

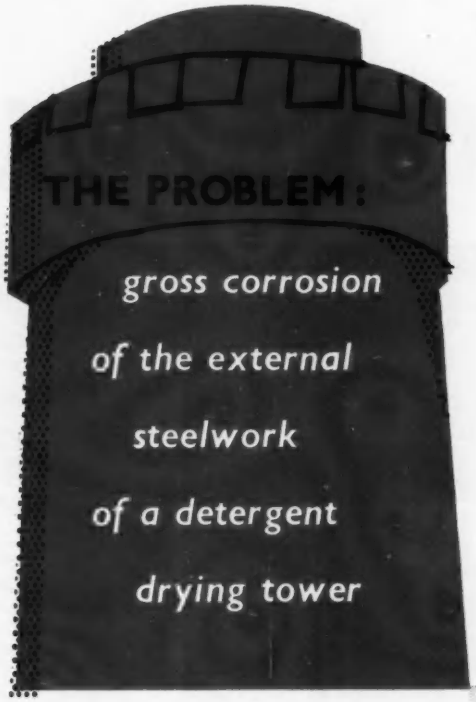
"THERMAX"

THE NEW CONTROLLED-DENSITY SILICEOUS RETORT BRICK

Full technical information will be forwarded gladly on request

DSF

DERBYSHIRE SILICA FIREBRICK CO. LTD
FRIDEN . HARTINGTON . NEAR BUXTON . DERBYSHIRE
GRAMS : SILICA, FRIDEN, HARTINGTON
PHONE : YOULGRAVE 271 (3 LINES)



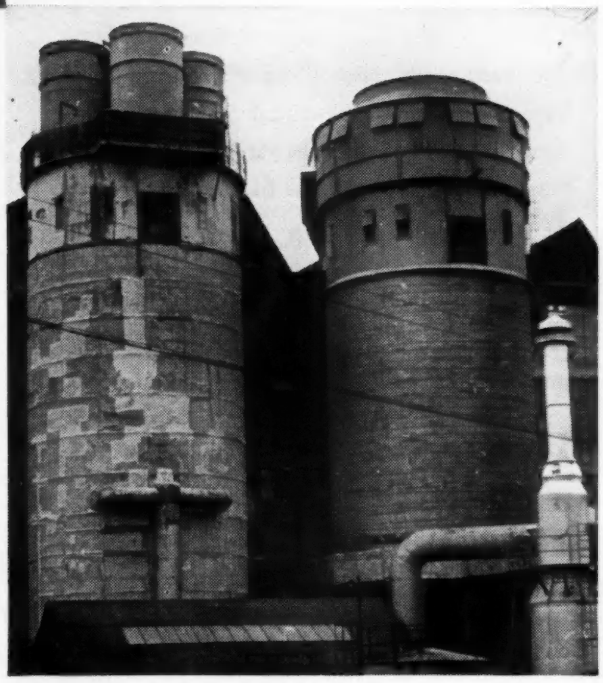
High humidity, high temperature and chemical vapours are part and parcel of the detergent drying process at the works of Joseph Crosfield Ltd., Warrington. The detergent slurry is dried in a tower at 100°C. and when the moisture has been freed from dust, it is exhausted at the top of the tower, via a wet scrubbing system. This process quickly eats into the external steelwork and conventional paints have given only short-lived protection.

THE ANSWER:

a paint that lasts for years

The tower on the right was painted two years ago with an amine-cured paint based on Shell's Epikote Resins. This paint is still in excellent condition and giving complete protection. Contrast this with the left-hand tower, painted with conventional paint at the same time, and used for a far less corrosive process.

For real maintenance savings, ask your paint supplier about paints based on Epikote Resins. The more severe the conditions, the more effective and cost-saving is the protection they offer!



EPIKOTE EPOXY RESINS

THE NEW POWER IN PAINT

SHELL CHEMICAL COMPANY LIMITED, Marlborough House, 15-17, Gt. Marlborough Street, London, W.1. Tel: GERrard 0666.

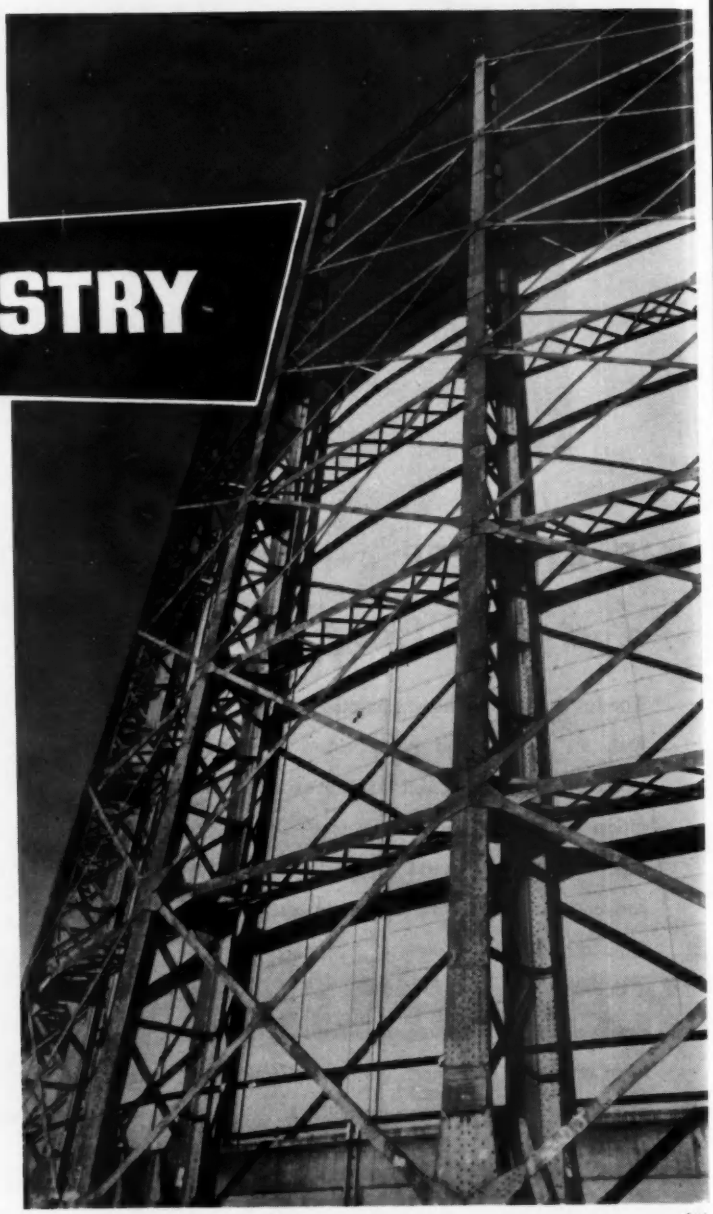
Divisional Sales Offices: LONDON, BIRMINGHAM, MANCHESTER, GLASGOW, BELFAST, DUBLIN.

"EPIKOTE" is a Registered Trade Mark.

556

Specialised PAINTS and ENAMELS

for all the needs of the GAS INDUSTRY



For many years, British Paints Limited have maintained a Technical Division solely to study and meet the varied painting requirements of the Gas Industry.

As a result, British Paints Limited are expert in this field, supplying paints, enamels and protective finishes scientifically formulated to satisfy particular purposes—whether for the protection of structural steelwork and gas holders, the decoration of premises, or the stove-enamelling of domestic gas appliances.

Whenever it is a matter of covering *any* surface consult British Paints Limited. Experienced Technical Staff will advise on the spot, if necessary.

Gas Holder, St. Anthony's, Newcastle upon Tyne. Painted with British Paints Limited "Superlative" Alkyd Enamel. Photo by courtesy of The Northern Gas Board

BRITISH PAINTS LIMITED

PORTLAND ROAD, NEWCASTLE UPON TYNE, 2

LONDON SYDNEY ADELAIDE TORONTO · DURBAN · CAPETOWN · CALCUTTA · TRINIDAD · NEW YORK

OUR WORLD-WIDE SERVICE IS AT YOUR DISPOSAL FOR THE ASKING

Fuel Conservation

IT IS TRUE to say that in spite of the shortage of most kinds of fuel in the Country today, large quantities of valuable combustible material are wasted.

What happens to the Pan Ash from the Retort Furnaces, bearing in mind that it almost invariably contains a good deal of coke – perhaps 20% or perhaps over 30%? Does a contractor cart it away, including the coke?

In making 750 million cubic feet of coal gas, probably 2,000 tons of pan ash are produced and it could contain from 300 to 600 tons of usable coke – worth perhaps £2,000 to £4,000. Some works make ten times as much gas, and ten times as much pan ash.

These figures are worth more than casual consideration, not only because the wasted coke from the ashes could be recovered and used in the works, releasing an equivalent tonnage of yard coke for sale, but because surely from the National point of view, no material which is a fuel should be wasted.

Our Fuel Recovery Plant will separate the coke from the pan ash. We can demonstrate it to you here, or we will gladly send particulars.

GEORGE WALLER & SON LIMITED

PHOENIX IRON WORKS · STROUD · GLOS

Telephone Brimscombe 2301-2 Telegrams Waller, Stroud

To readers of 'Gas Journal'.

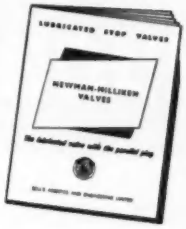
Lubricated Plug Valves for Liquids and Gases

"Describes the design, operation and application of valves utilising the lubricated plug principle."

"Gives details of types suitable for various pressures, temperatures and service conditions."

A "BESTOBELL" PUBLICATION

For free copy attach this advertisement to your letterheading with your name. Post to "Bestobell", Slough, Bucks.



A NEW CONDUIT BENDER — by HILMOR

The No. 4 Three Point Bender with ratchet actuated ram, adjustable bending head and degree of bend indicator. A sturdy, light-weight machine designed to give long and trouble free service under all conditions.

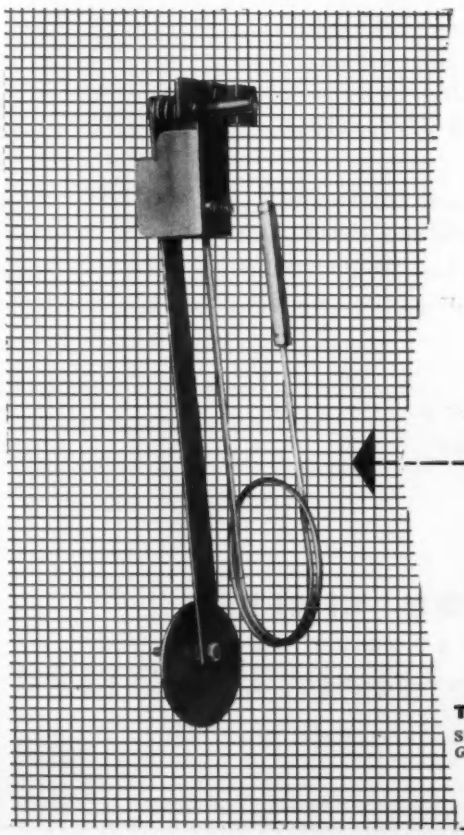
BENDS: ¼", ⅜", ½", ¾" and 1" gas and steam. (Also ½" to 1½" O.D. electrical conduit.)

NOTE THESE FEATURES

- Speedy and accurate bending with minimum of manual effort.
- Produces good quality bends — sets double sets, saddle bends, etc.
- Absence of top plate obstruction permits production of bends in similar or different planes with minimum of straight between adjacent bends.
- Designed for bolting to bench, holding in vice or mounting on portable stand with detachable legs.

Send for further details to:

HILMOR LTD. (Sales & Service)
CAXTON WAY, STEVENAGE, HERTS
Phone: Stevenage 881 *Grams: Tubenders, Stevenage*



The greatest contribution to the EFFICIENCY OF SOLID FUEL DOMESTIC BOILERS

Teddington

TYPE QW SOLID FUEL BOILER THERMOSTAT

CONTROLS PRIMARY AIRFLOW • REDUCES SCALE
PREVENTS FUEL WASTAGE

HEATING CONTROLS DIVISION
TEDDINGTON REFRIGERATION CONTROLS LTD
SUNBURY-ON-THAMES, MIDDLESEX. *Telephone:* Sunbury-on-Thames 456
Grams & Cables: TREFCON, Sunbury-on-Thames, Telex. *Telex:* 2-2742 Teddcontsnbry

BRANCH OFFICES:
107 Dale End, Birmingham, 4 • *Telephone:* Central 4971/2
41b Canal Street, Nottingham • *Telephone:* Nottingham 47042
31 Quay Street, Manchester • *Telephone:* Blackfriars 2120
255 St. Vincent Street, Glasgow • *Telephone:* Central 3933

AUTOMATIC Teddington CONTROLS

A NEW process ensures

JOINT STRENGTH

more quickly and

more easily...

In heating, plumbing or gas pipe-lines, the strongest joints are secured by **Ideal Full-way Fittings.**

A new and improved process has been developed for coating inside the full length of the sockets with a metal which has approximately the same melting point as solder. This renders the securing of perfect joints a simple and speedy operation.

Ideal Full-way Fittings are ready for immediate use—no cleaning is necessary and no time is wasted by having to scour with steel wool on the inside to prepare them for solder.

The internal diameter of the Fitting is the same as that of the tube which seats flush against the shoulder of the Fitting, ensuring a uniform bore throughout and providing unrestricted flow.

Ideal Full-way Fittings are interchangeable and are manufactured for use with British light gauge copper tube. They are unaffected by extreme temperatures and the joints are actually stronger than the tube itself.

● *In order to test their efficiency under pressure, a number of Ideal Full-way Fittings of varying types and in ½", ¾", and 1" sizes were used to connect several lengths of copper tubing, the joints being soldered in the normal way. The completed assembly was then hydrostatically tested to a pressure of 2,000 lb. sq. in. without leakage or distortion.*

IDEAL

Full-way

FITTINGS

IDEAL-Standard

Manufactured by

IDEAL BOILERS & RADIATORS LIMITED · IDEAL WORKS · HULL

372

THRUST BORING

Reducing labour costs, saving time and eliminating traffic diversions, the Pass Hydraulic Thrust Boring Machine for underground pipe and cable installations is a vital tool for both large and small contractors. The machine, which can be hand or power operated, offers a choice of 4 speeds — for further details write for fully illustrated leaflet.

The above illustrations show hand and power operated Pass Hydraulic Thrust Boring Machines in action.

PASS
GAS AND WATER ENGINEERS

HYDRAULIC THRUST BORING MACHINES

Specialists IN UNDERPRESSURE ENGINEERING

E. PASS & CO. LTD., DENTON, MANCHESTER.
Tel.: Denton 3001/2/3. Grams.: 'Tools', Denton, Manchester.

dm PA 102

Gunite

One of the reinforced concrete structures reconditioned with Gunite for the City of Carlisle Gas Undertaking

Gunite—concrete applied by air pressure—has numerous applications where its great density and extreme adhesion have exceptional value.

For repairing reinforced concrete it has particular merit, as, due to the method of application, a uniform density and adherence is obtained whenever Gunite is applied.

For lining coal bunkers and steel chimneys it possesses great resistance to corrosion and protects steel-work from the abrasive action of coal or coke.

96, VICTORIA STREET, S.W.1
Telephone : Victoria 7877 & 6275

THE CONCRETE PROOFING CO., LTD.

Handbook "GUNITE" sent on request

A hundred years of know-how...

At Kirkby, each production unit takes pride in its contribution to a high quality product.

Meticulous inspection and testing of the finished product ensures that only first-class tubes reach the warehouse. Careful handling ensures that they go forward to the customer in the same excellent condition.

A century of experience in copper tube making went into designing Kirkby —a great manufacturing unit planned for an even greater future.

I.C.I. COPPER TUBES FROM KIRKBY

IMPERIAL CHEMICAL INDUSTRIES LIMITED, LONDON, S.W.1

ICI METALS DIVISION

CT 8

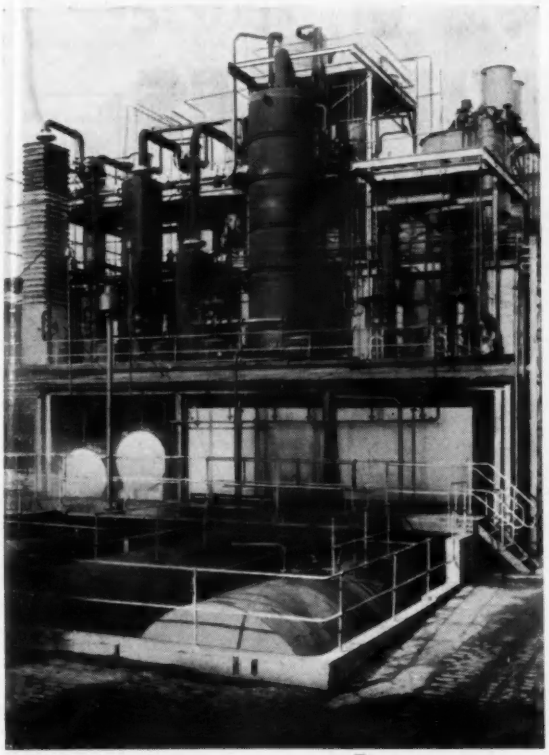
STAVELEY

SAND & METAL SPUN PIPES

(with run-lead or flexible joints)

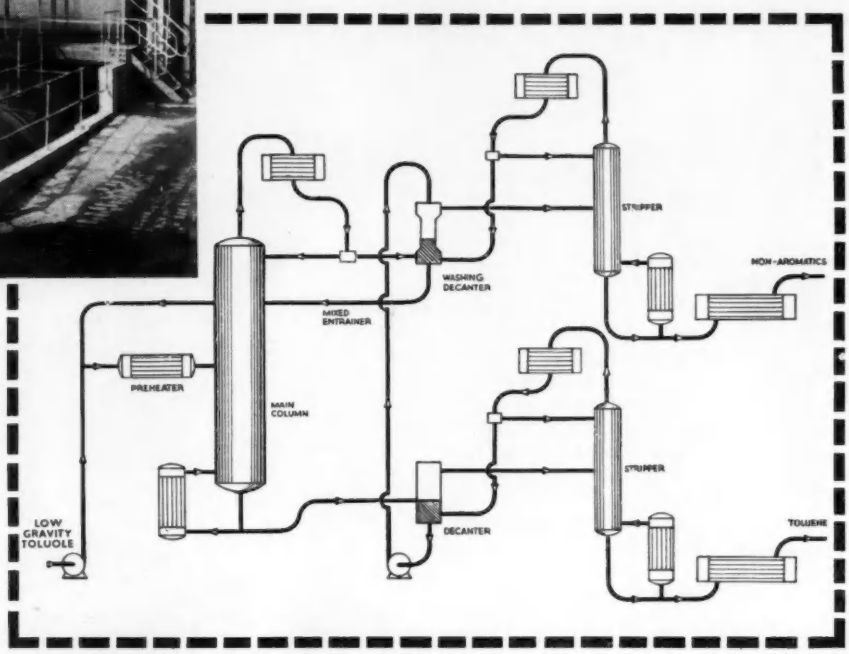
In leafy lanes where mains are being laid for a Rural District Water Scheme, or beneath city streets, Staveley Spun Iron Pipes will be found carrying Britain's gas and water supplies.

THE STAVELEY IRON & CHEMICAL CO., LTD. Nr. CHESTERFIELD



Pure Aromatics

BY APV MIXED ENTRAINER PROCESSES



APV continuous plant for producing nitration grade toluene from low gravity crudes, derived from vertical retort tars. Employing the APV Acetone/Methanol entrainment process, the plant achieved a toluene yield in excess of 96%

SPECIALISING IN THE STUDY of azeotropic and allied distillation procedures, APV offers a range of economic processes for the isolation of pure aromatics from mixtures with non-aromatic hydrocarbons. These processes are particularly suited to the treatment of such mixtures as are produced by modern benzole refining methods designed to obviate acid washing.

APV CHEMICAL ENGINEERING DIVISION

Wandsworth Park, London, S.W.18

ENGINEERS TO THE CHEMICAL, CARBONISATION & FERMENTATION INDUSTRIES

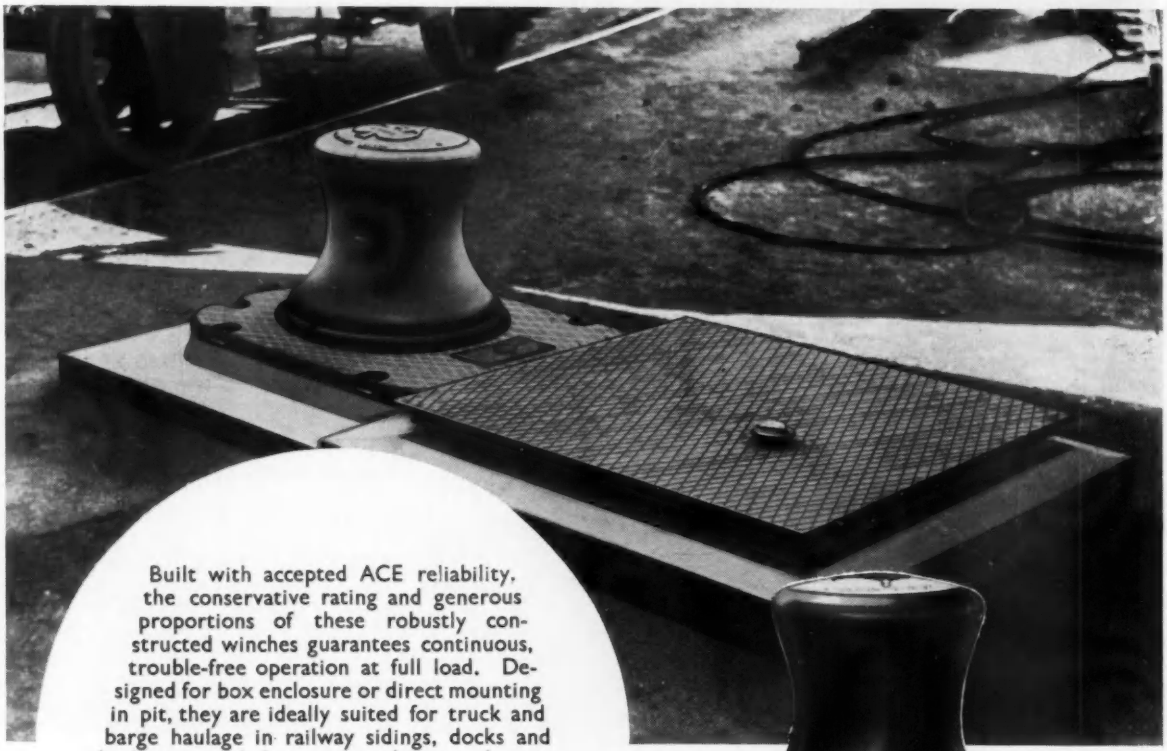
C

ELECTRIC

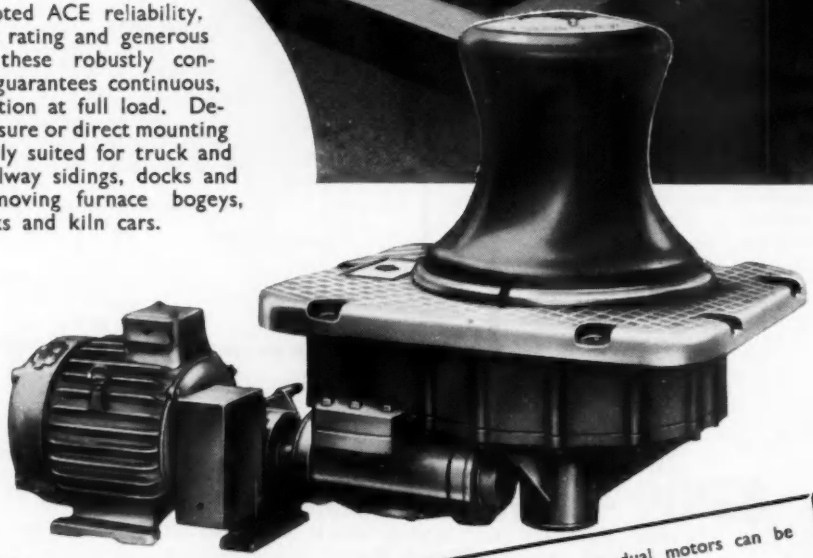
CAPSTAN WINCHES

ACE TRADE MARK

1 to 5 TONS CAPACITY



Built with accepted ACE reliability, the conservative rating and generous proportions of these robustly constructed winches guarantees continuous, trouble-free operation at full load. Designed for box enclosure or direct mounting in pit, they are ideally suited for truck and barge haulage in railway sidings, docks and harbours; and for moving furnace bogeys, mining trucks and kiln cars.



Capacity **1 to 5 tons**

Rope Speeds **45 to 160 ft. per min.**

For A.C. or D.C. operation.

Variable speed units employing dual motors can be supplied against specific enquiries.

FREE RUNNING FAIRLEAD ASSEMBLIES ARE AVAILABLE.

Please write for descriptive Leaflet No. 9667.

ACE

ELECTRIC CAPSTAN WINCHES

A.C.E. MACHINERY LIMITED

HARLEQUIN AVENUE · GREAT WEST ROAD · BRENTFORD · MIDDLESEX.

Telephone: EALing 6262 (5 lines). Telegrams: ACEMACY WES. PHONE. LONDON

and at Brixton, London, S.W.2.

INDEX TO 'JOURNAL' ADVERTISERS

	Page
A	
A.C.E. Machinery Ltd.	262
A.P.V. Company Ltd.	261
Abbott, Birks & Co. Ltd.	
Acme Wringers Ltd.	246
Arrogen Co. Ltd.	
Alder & Mackay Ltd.	
Allan Taylor (Engineers) Ltd.	
Aquafont Industries Ltd.	
Ascot Gas Water Heaters Ltd.	
Ashmore, Benson, Pease & Co.	245
Ashworth & Parker Ltd.	
Aspinall's (Paints) Ltd.	
Associated Lead Manufacturers Ltd.	250
Atlas Preservative Co. Ltd.	249
Audley Engineering Co. Ltd.	
Automotive Products Ltd.	
Averill, C. R., Ltd.	
B	
Bale & Church Ltd.	294
Balfour, Henry, & Co. Ltd.	
Bells Asbestos & Engineering Co., Ltd.	256
Berry's Foundry (1949) Ltd.	294
Birtley Engineering Ltd.	
Blakeley, Firth, Sons & Co. Ltd.	
Bolton's Superheater & Pipe Work Ltd.	
Borchardt, F.A., Ltd.	
Bratt Colbran Ltd.	
Bray, George, & Co. Ltd.	
Bristol Pneumatic Tools Ltd.	
British Carbo-Norit Union Ltd.	
British Gas Purifying Materials Co.	294
British Jeffrey-Diamond Ltd.	
British LaBour Pump Co. Ltd.	
British Paints Ltd.	254
British Rototherm Co. Ltd.	
British Thomson Houston Ltd.	
British Tyre & Rubber Co. Ltd.	244
Broadbent, Thomas, & Sons Ltd.	
Broom & Wade Ltd.	
Brown, J., & Co. Ltd.	
Bugden, Thos., & Co.	292
C	
Cambridge Instrument Co. Ltd.	
Cannon (G.A.) Ltd.	
Cementation Co. Ltd.	292
Chemical Engineering Wiltons Ltd.	
Cinema-Television Ltd.	
Clapham Bros. Ltd.	
Clayton, Son & Co. Ltd.	
Cleckheaton Engineering Co. Ltd.	
Clensol Ltd.	
Clifford Engineering Co. Ltd.	293
Cochrane (Middlesbro') Foundry Ltd.	
Cohen, George, Sons & Co. Ltd.	
Concrete Proofing Co. Ltd.	258
Consett Iron Co. Ltd.	248
Cort, Robert, & Son Ltd.	
County Chemical Co., Ltd.	
Crane Ltd.	296
Crone & Taylor Ltd.	
Crossley Bros.	
Crosthwaite Furnaces & Scriven Mach. Tools Ltd.	
Cutler, Samuel, & Sons Ltd.	287
Cuxson, Gerrard & Co. Ltd.	
D	
Davenport Engineering Co. Ltd.	
Davey, Paxman & Co. Ltd.	Cover IV
Davies Bros. (Denton) Ltd.	
De la Rue, Thomas, & Co. Ltd. (Gas Group)	
Demolition & Construction Co. Ltd.	
Dempster, R. & J., Ltd.	
Dempster, Robert, & Sons Ltd.	
Denison & Son Ltd.	
Derbyshire Silica Firebrick Co. Ltd.	252
Diaphragm & General Leather Co. Ltd.	
Donkin (The Bryan) Co. Ltd.	Cover II
Douglas, Wm., & Sons Ltd.	
Drakes Ltd.	
Dresser Manufactures (England) Ltd.	
Drew, H. B., Ltd.	
Drummond Patents Ltd.	
E	
Eagre Construction Co. Ltd.	
Edgar, Wm., & Son Ltd.	
Elcontrol Ltd.	
Electric Construction Co. Ltd.	
Electroflo Meters Co. Ltd.	
Electrolux Ltd.	
Elliott Bros. (London) Ltd.	
Ether Ltd.	
Evered & Co. Ltd.	
Ewart & Sons Ltd.	293
Ewart Chainbelt Co. Ltd.	
F	
Fibreglass Ltd.	
Fisher & Ludlow Ltd.	
Flavel, S., & Co. Ltd.	
Fluidrive Engineering Co. Ltd.	
Ford Motor Co. Ltd.	
Fowler, John, & Co. (Leeds) Ltd.	
G	
Gas Purification Ltd.	294
General Electric Co. Ltd.	
Gibbons Bros. Ltd.	
Girdex Engineering Co. Ltd.	
Glover, George, & Co. Ltd.	243
Glover, Thomas, & Co. Ltd.	
Godfrey, Sir George, & Partners (Industrial)	
Goodall Clayton & Co. Ltd.	
Goodyear Industrial Rubber Products Ltd.	
Grant Lyon & Co. Ltd.	
Graphite Products Ltd.	
Greenwood & Batley	
Green & Boulding Ltd.	
Gunite Construction Co. Ltd.	
H	
Hamilton, A. H., & Co. Ltd.	
Hardman & Holden Ltd.	
Harris & Pearson Ltd.	
Harris Engineering Co. Ltd.	
Harrisons (London) Ltd.	
Harvey, G. A., & Co. (London) Ltd.	
Hick Hargreaves & Co. Ltd.	
Hilmor Ltd.	256
Holman, Michell & Co. Ltd.	
Holmes, W. C., & Co. Ltd.	295
Holst & Co. Ltd.	277
Hopkinsons Ltd.	
Horseley Bridge & Thomas Piggott Ltd.	
Horstmann Gear Co. Ltd.	
Hudswell Clarke & Co. Ltd.	
Hughes, F. A., & Co. Ltd.	
Humphreys & Glasgow Ltd.	
I	
I.C.I. Ltd. (Metals Division)	259
Ideal Boilers & Radiators Ltd.	257
Inertol Ltd.	
Ingham, John, & Sons Ltd.	
J	
Jeavons, E. E., & Co. Ltd.	
Jeavons Engineering Co.	
Jenkins, W. J., & Co. Ltd.	
Johnson, C. H., (Machinery) Ltd.	
Joy-Sullivan Ltd.	
K	
Keay, E. C. & J., Ltd.	
Keelavite Rotary Pumps & Motors Ltd.	
Keir, J. L. & Co. Ltd.	
Kings Patent Agency Ltd.	294
King, Walter, Ltd.	293
Kirkham, Hulett & Chandler Ltd.	
L	
Lafarge Aluminous Cement Co. Ltd.	
Lamont, James H., & Co. Ltd.	
Le Bas Tube Co. Ltd.	
Lee, Howl & Co. Ltd.	
Lincoln Electric Co. Ltd.	
Lind, Peter, Ltd.	
Lionweld Ltd.	
Lythgoe, Adam, Ltd.	
M	
MacLellan, George, & Co. Ltd.	
Macpherson, Donald, & Co. Ltd.	
Magnetic Valve Co. Ltd.	
Main, R. & A., Ltd	
Major Robinson & Co. Ltd.	
McNeill, F., & Co. Ltd.	
Meltham Silica Fire Brick Co. Ltd.	
Metal & Pipeline Endurance Ltd.	
Meters Ltd.	
Metropolitan-Vickers Electrical Co. Ltd.	
Midland Iron & Hardware Co. (Cradley Heath) Ltd.	292, 294
Milne (Edinburgh) Ltd.	
Mint, Birmingham Ltd.	
Mitchell Engineering Ltd.	
Mitchell, H., & Co.	
Moler Products Ltd.	
Monk, A., & Co. Ltd.	
N	
National Benzole Co.	
Nelson, W. & H., Ltd.	275
Neville, J. C., Ltd.	
New Conveyor Co. Ltd.	
Newton Chambers & Co. Ltd.	Facing p. 273
Norwest Construction Co. Ltd.	
O	
Oxley Engineering Co. Ltd.	
P	
Parkinson & Cowan (Gas Meters) Ltd.	266
Parkinson Stove Co. Ltd.	
Pass, E., & Co. Ltd.	258
Peart, E. & Co. Ltd.	291
Peebles & Co. Ltd.	
Perl Controls Ltd.	265
Pickles, Ayland & Co. Ltd.	278
Plenty & Son Ltd.	287
Power-Gas Corporation Ltd.	
Press, William, & Son Ltd.	
Procter Bros. (Wireworks) Ltd.	
Pyrene Co., Ltd.	
R	
Radiant Heating Ltd.	
Radiation Ltd.	288, 289
Rawlplug Co. Ltd.	
Reavell & Co. Ltd.	296
Ride & Bell Ltd.	
Roberts, R. E., & Sons Ltd.	
Robinson, J. H., & Co. (Liverpool) Ltd.	
Royston, Geo., & Sons Ltd.	
Rozalex Ltd.	296
S	
Salter, T. E., Ltd.	
Saunders Valve Co. Ltd.	
Sawyer, Geo. E., Ltd	
Scientific & Projections Ltd.	
Senior Economisers Ltd.	
Shaw Petrie Ltd.	
Shell Chemical Co. Ltd.	253
Siebe Gorman & Co. Ltd.	Cover II
Siemens-Schuckert (Great Britain) Ltd.	
Sigma Instrument Co. Ltd.	
Simon, Richard, & Sons Ltd.	
Smith & Nephew Ltd.	
Smith Meters Ltd.	
Smith, Thos., & Sons (Rodley) Ltd.,	
Spanner Boilers Ltd.	
Spencer-Bonecourt Clarkson Ltd.	
Speedwell Gear Co.	
Sperryn & Co. Ltd.	243
Stanton Ironworks Co. Ltd.	
Staveley Iron & Chemical Co. Ltd.	260
Stein, John G., & Co. Ltd.	
Stewart & Gray Ltd.	
Stewarts & Lloyds Ltd.	
Stillite Products Ltd.	
Stoves Ltd.	
Strachan & Henshaw Ltd.	Cover I
Stringer Bros.	
Sugg, Wm., & Co. Ltd.	
Sutcliffe Speakman & Co. Ltd.	
Sutherland, A. G., Ltd.	
T	
T & T Works Ltd.	
Tangyes Ltd.	
Teddington Refrigeration Controls Ltd.	256
Thorp, Thomas, & Co. Ltd.	
Tully Engineering Co. Ltd.	
Turners Asbestos Cement Co. Ltd.	264
U	
Underpressure Engineering Co. Ltd.	
United Gas Industries Ltd.	
United Kingdom Construction and Engineering Co. Ltd.	
V	
Vaughan, Edgar, & Co. Ltd.	
Vauxhall Motors Ltd.	251
Visco Engineering Co. Ltd.	
W	
Wakelin, F. H., Ltd.	294
Walker Bros. Ltd.	
Walker, C. & W., Ltd.	
Walkers (Century Oils) Ltd.	
Walkers and County Cars Ltd.	
Waller, George, & Sons Ltd.	255
Walter King Ltd.	293
Ward, Thos. W., Ltd.	
Weir, G. & J., Ltd.	
Wellington Tube Works Ltd.	
West's Gas Improvement Co. Ltd.	Cover III
West's Piling & Construction Co.	292
Westwood & Wrights Ltd.	247
Whessoe Ltd.	
Whitley Moran & Co. Ltd.	
Whitlock Bros. Ltd.	
Wilkes, A. H., & Co. Ltd.	296
Williamson, Cliff, Ltd.	
Wilson, George, Gas Meters Ltd.	
Winn & Coales Ltd.	
Woodall-Duckham Construction Co. Ltd.	Facing p. 272
Wood, Hugh, & Co. Ltd.	
Y	
Yorkshire Copper Works Ltd.	
Z	
Zinc Development Association	

Agencies	294
Appointments Vacant	
Appointments Wanted	
Books	
Contracts Open	
Educational	
Fellowship	294
Patents	294
Plant &c. For Sale	
Plant Wanted.	
Publications	

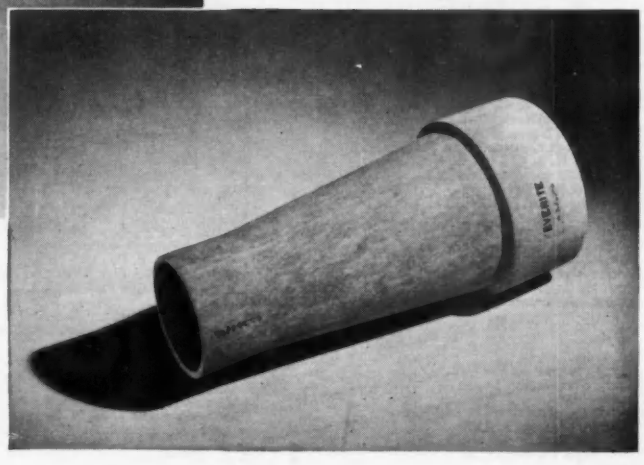
"EVERITE"
REGD. TRADE MARK

ASBESTOS-CEMENT

FLUE PIPES & FITTINGS
(Light Quality)

Pipes and fittings available in 2"-6" diameters—primarily for use with gas-fired appliances.

Manufactured in accordance with BS.567/1954.



WE HAVE AN EXHIBIT AT THE BUILDING CENTRE
26 STORE STREET W.C.1

TURNERS ASBESTOS CEMENT CO LTD
A MEMBER OF THE TURNER & NEWALL ORGANISATION
TRAFFORD PARK MANCHESTER 17

F11

PERL

FLAME PROTECTION DEVICES

To suit almost every application

PERL

MAGNETIC GAS VALVES

2-way & straight through types

PERL

THERMOSTATS & RELAY VALVES

Industrial, commercial & domestic applications

PERL

AUTOMATIC IGNITER SETS

Separately or with flame protection

PERL

CONSISTENT RELIABILITY

PERL CONTROLS LIMITED
672 Fulham Road, London, S.W.6 RENown 5555-6
WORKS & TECHNICAL DEPT. CRAWLEY 25115-6

Gas Journal

VOL. 291 NO. 4908 August 7, 1957

109TH YEAR

MANAGING DIRECTOR: Clifford A. King

EDITOR: Geoffrey W. Battison

TECHNICAL EDITOR: Charles J. P. de Winton, T.D., M.A., M.Inst. Gas E., M. Inst. F.

Published by Walter King Limited,
11, Bolt Court, Fleet St., London, E.C.4

Telephone: FLEet Street 2236-7 Telegrams: Gasking, Fleet

CONTENTS

Page

EDITORIAL COMMENT

Canadian Energy Supplies 267
The Future of the B.I.F. 268
Coal Price and Profit 269
Bringing Inflation into Focus 269
W augh and Feace 269

SPECIAL ARTICLES

New 'Rexco' Plant at Thoresby.. 273
Planning for an Emergency 280
Operational Land of Statutory Undertakers 290

NEWS OF CURRENT EVENTS

Personal 270
N.T.G.B. Cover 10 million Miles a Year 270
Gas Tariff Changes 271
New Process for Hydro-refining Crude Benzole 272
North British Rubber Co., Ltd. Forms New Department .. 272
Ewart Holdings Ltd. to Increase Capital 278
New Metallurgical Laboratory Opened 279
Scottish Coke Satisfies 'Guinea Pigs' 279

TECHNICAL RECORD

Some Unasinine Requirements Concerning the Law on River Pollution and the Disposal of Trade Effluent and Suggestions for Change. By Colin N. Smettem 282
Bogie Hearth Furnace for Annealing Whiteheart Malleable Castings 286

PUBLISHERS' NOTICE, SEE PAGE 293

THERE is a degree of quality in every type of Parkinson meter which is far beyond the requirement of any customer specification

PARKINSON & COWAN
GAS METERS

GM11

Gas Journal

VOLUME 291. No. 4908. AUGUST 7, 1957. 109th YEAR

Canadian Energy Supplies

THE rise in industrial activity in Canada since the war has had a most important impact on the industrial outlook of the Western hemisphere. It seems strange that, although Canada has been known to possess very large resources of all types of minerals, including both ferrous and non-ferrous metals as well as important uranium deposits, it was not until ten years ago when an oil well, the Imperial Leduc No. 1, was successfully drilled and produced oil in quantity, that the real industrial expansion could go forward at full speed. Even this was the culmination of drilling 133 dry wells.

The finding of oil in this well, which is ten miles south west of Edmonton, Alberta, merely proved what geologists had suspected for some time—that Western Canada held vast reserves of oil and natural gas. It was now possible to prove the great oil fields of Alberta, Saskatchewan, and to a smaller extent those of British Columbia, the Yukon and the North Western Territory.

In the last ten years the rate of development of oil and natural gas has been greater than anywhere else in the world, except perhaps in parts of the Middle East oil field, and consequently the wealth of the Dominions has increased correspondingly. By possessing these vast resources of power, it has become more than ever possible to exploit other sources of mineral wealth with a greater certainty of success and a faster raising of the standard of life of the whole country.

The country as a whole is, however, short of two very vital possessions for fully developing these resources—capital and manpower. In the last ten years something like $4,000 mill. have been invested in Canada's oil industry. This has covered all aspects of the industry from the search for the oil and natural gas to transportation and petrochemical plants. The great majority of this capital investment has come from the United States and this now accounts for something like 70% of all the money invested in the Canadian oil industry. With this vast capital investment has come an enormous increase in the output of crude oil and increased activity in the proving of known reserves.

In the last ten years the ouptut of crude has increased from 20,000 barrels a day to 470,000 barrels a day, pipeline mileage has increased from 435 to 5,700 miles, refinery capacity nearly trebled, and proved reserves increased from 72 mill. to 3,100 mill. barrels. Consumption of oil, too, has also increased, and with these changes the export-import position of oil to and from the United States has completely altered.

Today, with a twentyfold increase in production and a home consumption running at 720,000 barrels a day, a mere 293,000 barrels a day are being imported, only 7% of which comes from the United States. In fact Canada is exporting a great deal of oil to the United States which has become since the war a net importer of oil. This business amounts to about 120,000 barrels a day, and is continually rising.

How does this extraordinary situation arise? It is because it has been found that it is more economic to import oil either from the United States, the Caribbean or the Middle East for Canada's Eastern Provinces than it is to bring it from the Prairies. In the same way the United States find it equally convenient to import oil from Canada for those states near the Canadian border and to ship oil from Vancouver to California.

Two years ago a Royal Commission was set up with Mr. Walter L. Gordon, a well-known Canadian business man, as chairman, to enquire into the long-term economic prospects of the country. After 18 months it reported on what it considered to be the likely growth throughout industry and the increase in population over the next 25 years. In its opinion the population will increase to 26.5 mill. from the present 15.575 mill.—or it might even exceed this if the present net immigration remains at its present level—the gross national production may triple itself and rise to $76,000 mill., and the average Canadian's income may increase by 66⅔%.

The Commission's views on the future of energy

sources is most interesting in that atomic energy is unlikely to have any great influence on the supply of energy for a great many years to come. This is not because the Commission is in any way sceptical about its development but points to the utterly different conditions existing in Canada to those in Europe. It is thought that by 1980 the major sources of energy will be petroleum and natural gas which between them will account for 70% (45% and 25% respectively) and water power which will be increased to 11%. Dependence on coal, which is mined in the Eastern Provinces, will have fallen in importance from 39% of fuel needs in 1953 to 16%, while atomic energy may account for only 2%. In 25 years time the forecast outputs of oil and natural gas are almost fantastic. By 1980 the potential output of oil is estimated at about 10 times the 1955 production, which will be between 1½ times and twice the Canadian requirements, and the output of gas is estimated at 15 times the 1955 production or about 50% above the then domestic requirements.

This will mean that there will be large quantities of oil and gas for export, which will be all the greater if oil continues to be imported into Quebec and the Atlantic Provinces. If these exports are realised by 1980, Canada's net export surplus in oil and gas alone would be over $1,000 mill. per annum compared to the present excess import over exports of $340 mill.

The prosperity based on these export surpluses depend very largely on the co-operation of the United States as Canada's chief buyer of petroleum products and natural gas. As things stand at the moment the costs of exploration, development and production of oil in Canada are substantially less than they are in the United States, since proven reserves discovered in new fields and new pools in old fields per foot of 'wild-cat' drilling have been almost double the corresponding figure in the United States; such costs are very much higher than in the Middle East. They do not differ, however, very appreciably from the corresponding costs in Venezuela.

The capital to be invested in the Canadian oil industry to attain the desired ouptputs of oil and natural gas is on an equally prodigious scale. In 1955 a total investment in the industry covering all its activities from exploration to the distribution of all refinery products and crude amounted to $450 mill., but it is estimated that between then and 1980 a further $25,000 mill. will be invested.

It would seem from these figures that the future energy demands to be met by oil and gas would soon surpass every other source of energy so that the mining of coal would cease to be necessary. This, however, the commission are at pains to point out, is not what they have in mind. In fact, to avoid such a contingency as the stopping of coal mining which takes place mostly in the Western Provinces, in particular, Nova Scotia, oil from the Western Provinces will not be encouraged, but any that is needed will be imported from elsewhere. Energy supplies for the generation of electricity will be drawn from water power sources and thermal stations fired by coal.

Natural gas will be available by means of the Trans-Canada Pipeline which should make possible an enormous expansion in domestic gas consumption throughout the whole Dominion. In fact as the supply of gas goes eastward towards the Atlantic and south-westward through British Columbia from the Peace River to the American border and beyond, so is the overall demand for it increasing.

Seldom, it seems, does a country as gifted in mineral wealth and the energy sources to fully exploit them as this great Dominion of Canada, so suddenly appear in the industrial firmament.

The Future of the B.I.F.

THE great days of the British Industries Fair are long past, days when there was a thriving gas section at Castle Bromwich which was regarded as the premier contact with industrial users. There has been a gradual falling off of interest in the Fair for some years and this has been reflected in the dwindling participation of the gas industry, culminating in the withdrawal of the Gas Council and the substitution of a stand jointly sponsored by the East and West Midlands Boards.

The 1957 Fair was held under entirely new circumstances. Twelve months previously the Government had decided to close the London section. The Birmingham end of the Fair has always been organised and financed in its entirety by the Birmingham Chamber of Commerce. The Chamber purchased the original buildings; the grounds are leased from the Birmingham Corporation for a period exceeding 100 years. The Chamber of Commerce decided to carry on the 1957 B.I.F. principally because they felt sure that a general Fair of this nature was required by British industry.

It now appears that the Fair may change its character in favour of a general trade fair on the lines of the great Continental fairs. This idea has been described by the chairman of the Fair Executive Committee in a speech to the civic authorities. He said: 'Probably all of us have seen the last of the B.I.F. in the present form . . .. Despite the success of the specialised fairs, Britain still needs a great general trade fair . . . international in character to be in tune with modern times.' An international fair was certainly the only type in tune with the European Free Trade Area plan. It was demanded by national prestige. We needed an international fair in Britain, corresponding with such fairs abroad, to give British industry 'a fair crack of the whip.'

Certain questions immediately spring to mind. In view of the fact that British industry is concerned today to a greater extent than ever before with its own problems of export and in meeting competition from manufacturers in other countries, will it be to our advantage to have a fair where our goods stand side by side with those of foreign manufacturers? If it is, is Birmingham the right place to hold it? And if it is held in Birmingham, is it right that it should be the sole responsibility of the Birmingham Chamber of Commerce?

The answer to the first question must depend on Government policy and the will of British industry, but assuming it to be in the affirmative, it is difficult to see where else such a fair *could* be held. Although Birmingham could never be so attractive as London as a great exhibition centre it has a number of things in its favour—a central position, easy access to London and elsewhere, close proximity to industry itself and one of the most suitable exhibition buildings in the British

Isles. Where in London could one house an international fair? It could only be accommodated by splitting it up between several halls. As for the sponsorship, obviously that would have to be more widely based.

The future of the B.I.F. is as yet undecided. There has been a deputation to the President of the Board of Trade, Sir David Eccles, from the Birmingham Chamber of Commerce which expressed itself as being in favour of placing the Fair on an international basis and said that it had been decided not to hold the Fair in 1958.

Should this proposal be accepted, the question arises —what will the British gas industry do about it? On the face of it there would not appear to be a strong case for extensive participating. Better perhaps to concentrate on such exhibitions as the one to be held in a month's time, one which has already absorbed some of the B.I.F.'s former glory, and which now probably sports the longest title of any exhibition in this country. We refer to the Engineering, Marine, Welding, and Nuclear Energy Exhibition.

Coal Price and Profit

THE 8% increase in coal prices five weeks ago left a nasty taste in the mouth which has in no way been dispelled by the fact that, according to the N.C.B.'s quarterly statistical statement, the Board earned a surplus in the first quarter of the year of £8.8 mill. However, it is only fair to point out that the first quarter's results are nearly always the best of the year, and that since then there have been large increases in the wage-bill and a number of outside costs.

When the board announced price increases from July 1 they stated that they would incur substantially greater expenditure during the rest of 1957, and that the increase in price was expected to produce a relatively small surplus for the year, which would enable them to reduce only to a limited extent the accumulated deficit in the accounts of £23.8 mill.

Total profits for the quarter amounted to £15.5 mill., of which £11.6 mill. came from collieries, £2 mill. from opencast and £1.9 mill. from ancillaries. Some £4.2 mill. was lost on imported coal, and £6.2 mill. was paid in interest to the Minister of Power.

It is interesting to note that the total costs of production reached a new high level of £3 16s. a ton, of which £2 5s. 8d. was due to wages. Average earnings of workers in the industry rose to £15 10s. 1d. a week. Faceworkers earned on average £17 15s. 9d. a week.

Bringing Inflation into Focus

THE North Western Gas Board's publication *Focus* is notable both for casting its net in the widest possible sea, and for the quality of the 'catch.' The latest issue of this adventurous 'factual survey of topics that have a bearing on the gas industry' is devoted to inflation. The writer, Sir Oscar Hobson, maintains that inflation at root is a moral disease infecting the community, a disease of fear and self-deception, and that it will only be removed by some process of moral regeneration.

Sir Oscar does not accept the view that heavy taxation in a community like ours, which desires to spend a substantial fraction of its national income on community objects such as defence and social welfare, must inevitably cause inflation. Whether, however, high taxation is a predisposing condition which makes inflation likely, he says, is a question difficult to answer. 'A substantial reduction in public expenditure by leading to less full employment might indeed slow off the rate of inflation, at any rate for a time. But I regard high public expenditure as only one of the components of the soil in which inflation is likely to germinate and flourish. A more important component is the present unprecedented speed of new invention and scientific discovery, the intense desire of the community to exploit which leads to the condition of overfull employment which is the operative force leading to the "vicious spiral" of rising prices—rising incomes—rising prices which we call inflation.' This, however, he points out, is only half the story. 'Incomes are money and incomes cannot rise whatever the rapidity of the progress of industry or the keenness of the people for a higher standard of living unless there is enough money to allow them to rise.'

Waugh and Peace

FOR the individualist who, loathing big business and mighty industry, nevertheless allows himself to be enveloped in their coils, the sacrifice is all the greater for being a shameful defeat of principles. It can be relieved by several means—by permitting a gradual brain-washing until the subject is one with his employers, by maintaining an attitude sufficiently stubborn and rebellious to leave no doubt in anyone's mind that compliance is achieved only under compulsion, or by playing the game 'their way' but relieving the feelings off duty by guying the whole thing. By such means the victim achieves something approaching peace. If, as one suspects, Mr. Correlli Barnett, the author of a newly published novel (*The Hump Organisation*, Allan Wingate, 13s. 6d.) has produced a hero who exhibits some of the attitude of his creator, it is clear that he subscribes to the last method. By cocking a snoot at the moguls and the machine shops he is able to salve his conscience and submit to employment in industry—albeit in the marginal capacity of copy writer. Our reason for mentioning him is that he is employed by the North Thames Gas Board—for whom he writes all their advertisements—and therefore joins the slender ranks of the gas industry's literary men. He is a welcome addition for his style and acid humour are such that his first book is unlikely to be his last.

His publishers, in their particularly silly jacket blurb, refer to him as a satirist of 'Waugh-like propensity' (a pun so dire that we felt able to get away with our heading) and it is true that in background, attitude, style, and even appearance, Mr. Barnett reminds one of Evelyn Waugh. Unfortunately, drawing such a comparison is like the kiss of death. Where Mr. Waugh's humour is incised with a scalpel, Mr. Barnett's is cut with a sharpish penknife; for all his engaging wit, on no count is he the equal of the master.

Among other things the Hump Organisation makes tin cans, motor cars, and oil water heaters (such as the Thermohump and the Osohot). Antony Morland joins as a trainee and suffers the horrors of the company's training scheme. He achieves his ambition of retiring at 30 not by hard work and perseverance, but by making the chairman's wife his mistress and later by blackmailing the tycoon about an unfortunate episode over a call-girl. The training scheme stuff is extremely well done, but then we found the whole novel, if not moral, at least uplifting. It would perhaps be indelicate to suggest that Mr. Barnett found useful material in the N.T.G.B., although . . . No, we'll leave it at that.

Personal Notes

COLONEL SIR HAROLD SMITH, K.B.E., has been re-appointed Chairman of the Gas Council when his present term of office expires on December 31, 1957.

MR. G. M. BEHR, Home Sales Manager of Ascot Gas Water Heaters, Ltd., has been appointed General Sales Manager responsible for the maintenance and enlargement of all export markets and for the co-ordination of sales promotion in both the home and overseas markets. This and the following appointments are subsequent to the resignation of Ascot's Overseas Manager, MR. G. H. ROSAM, who is taking up a new appointment as Joint General Manager of Rank-Xerox Ltd. MR. G. E. JEFFS, Northern Manager of Ascot's, is to be Sales Manager (London) and deputy to Mr. Behr; MR. G. MICHIE, Area Manager in the North Thames Gas Board area, is to be Northern Manager (Glasgow) responsible through Mr. Jeffs for representation and sales promotion in the Irish Republic and Northern Ireland, and the North Eastern, North Western, Northern, and Scottish Gas Boards' areas; MR. D. GOFFIN is to be Continental Representative, responsible to Mr. Behr for the co-ordination of all sales promotion in Europe; and MR. F. TAYLOR is to be Export Representative, responsible to Mr. Behr for all territories outside Europe. There will be no change in the Ascot sales organisation's Southern region, which will continue to be managed by Mr. J. M. Backhurst (Bournemouth).

MR. H. V. STANTON has been appointed by George Ellison Ltd., to be Sales Engineer for Ellison Switchgear in the Surrey, Sussex, and Kent areas. With the appointment of Mr Stanton, the areas covered by the other Sales Engineers have been re-allocated in the south-east area sales and consultative service for George Ellison Ltd. as follows:—MR. J. RUSSELL-SMITH, Essex, Norfolk, Suffolk, Hunts, Cambs, and Isle of Ely; MR. R. J. ROY, Middlesex, Oxford, Bucks, Berks, Hants, and Isle of Wight; MR. F. W. WEBB, Beds. and Herts; MR. CROWTHER will continue to act in a consultative capacity in Sussex, Kent, Hants, and Isle of Wight but will eventually concentrate on Inner London, also shared between the Sales Engineers already mentioned. The management of the London Office of George Ellison Ltd. at Connaught Place, W.2, will continue to be the responsibility of MR. J. R. T. WHITE, the London Area Branch Manager.

The Pearly King of Battersea, Mr. Bill Emmens, was among 30 N.T.G.B. employees who recently received long service awards after 40 years in the industry. He is seen here with Mr. R. N. Bruce, Deputy Chairman of the Board, who made the award.

MR. L. H. THOMAS, Group Engineer and Manager at the Rabone Lane works of the West Midlands Gas Board, has been presented with a typewriter to mark his retirement after 45 years' service with the gas industry. The presentation was made by Mr. A. Blinkhorn, Deputy Engineer and Manager.

Obituary

MR. L. K. BRINDLEY, Consultant to the President of the International Nickel Co. of Canada, Ltd., and at his retirement last February, Deputy Chairman of the Company, died last month.

Appreciation

Mr. John Wilkinson

THE following appreciation of Mr. John Wilkinson, O.B.E., who died on July 28, has been contributed by Dr. J. Burns, Chief Engineer, North Thames Gas Board.

With the passing last week of John Wilkinson, the gas industry has lost the oldest ex-President of The Institution of Gas Engineers, for John Wilkinson or, as he was known to his friends and colleagues, 'Honest John,' was President of the Institution in 1926-27.

John Wilkinson lived to the ripe old age of 87 and was actually a fully qualified engineer in the industry before the turn of this century. He held important posts at Sheffield, Halifax, and Nottingham and the 'JOURNAL OF GAS LIGHTING' as far back as 1911 takes note of his success as an engineer.

There are not so many engineers in the industry now who had personal experience of John Wilkinson, but one who had described him as 'a delightful friend, upright in body and in mind, tall and with a gentle brogue, never dominating the company about him but all were glad to have him there.'

N.T.G.B. Transport Covers 10 mill. Miles in a Year

TRANSPORT drivers of the North Thames Gas Board covered, during the past 12 months, more than 10 mill. miles in and around London and the Home Counties.

During that period, 656 of the drivers were accident-free, and so qualified for safe driving awards in connection with the safety first competition sponsored by the Royal Society for the Prevention of Accidents. In completing a further year without an accident, several of these 656 drivers achieved continuous safety records of up to 25 years, and these cases were recognised by additional awards.

These 'major' awards were presented at a recent ceremony by Mr. R. N. Bruce, Deputy Chairman of the Board, who congratulated them on their achievement. A guest at the ceremony was Chief Superintendent J. Bidgood, of the Metropolitan Police, who also offered his congratulations, and stressed the need for courtesy on the part of all road users. Bad temper, he told his audience, is among the biggest causes of accidents.

Also present were Colonel A. R. Forbes and Major F. W. Firminger, both of the Royal Society for the Prevention of Accidents. They offered the thanks of the Society for the Gas Board drivers' big contribution to road safety.

Since the safe driving scheme was instituted, drivers of the North Thames Gas Board have gained 1,408 of these 'major' awards, ranging from 698 men with five accident-free years to one man with a record of 35 years' driving without an accident.

NORTHERN BOARD DRIVERS RECEIVE SAFETY AWARDS

SAFE driving awards from the Royal Society for the Prevention of Accidents were handed to drivers employed by the Sunderland Division of the Northern Gas Board at a recent ceremony in the Divisional headquarters by Alderman Joseph Hoy, Chairman of the Northern Gas Consultative Council and Mayor of Sunderland.

In making the awards, Alderman Hoy, Chairman of the Local Safety Organisation Committee, said that during the past year drivers in the Division had covered 400,000 miles and this figure was likely to be even higher in the current year in view of the increasing demand for smokeless fuel and the expansion in gas services.

NEWS OF CHANGING TARIFFS CONTINUES TO COME IN

GAS PRICE TO GO UP IN WALES

THE Wales Gas Board proposes to increase the price of gas by an average of 1½d. per therm by advancing the flat rate price by 2d. per therm, with proportionately smaller differential increases to the usual special categories of consumers, and after adjustments in tariffs in certain neighbouring undertakings.

In the case of the Board's optional two-part tariff, it is proposed to leave unaltered the commodity charge for gas but to increase the standing charge by 3s. 3d. per quarter. This increase in price will become effective in and after the September quarter of the current year.

3d. or 4d. a Week

Announcing the increase, Mr. T. Mervyn Jones, Chairman, said that for the average domestic user on the optional domestic two-part tariff the effect would be to increase the gas bill by 3d. per week, while for the consumer on the domestic flat rate it could be rather less than 4d. per week.

Higher annual costs which the Board has had to face since the last gas price advance total £466,000. This figure is made up by increases in wages amounting to £121,000; the latest coal price increase, £200,000; the increase in freight charges of 10% on August 1, £50,000; extension of the Board's pensions schemes, £35,000; and provisional allocation for increased internal financing of capital expenditure in pursuance of present Government policy, £60,000.

Not Passed On

At the time of the last gas price increase unavoidable costs falling on the Board amounted to £698,500 per annum. The additional revenue produced by that price increase was calculated to amount to £464,000 per annum, so that additional costs of £234,500 per annum were not passed on to consumers.

The Southern Gas Board price increases, announced briefly in these columns last week, are due to higher costs amounting to more than £1 mill. in a full year due to higher coal prices, increased freight charges, wages and salaries, and local rates.

Further Economies

Additional revenue from the recent increase in the price of coke will provide £222,000, leaving £954,000 to be found, equivalent to 2d. per therm on the total therms sold by the Board. The Board propose, however, to absorb more than £.5 mill. of these costs by further economies and are adjusting their tariff to provide the difference of £426,000, equivalent to nine-tenths of a penny per therm.

In his statement to the Southern Gas Consultative Council Mr. C. H. Leach, Chairman of the Board, said that they would continue to pursue all practical steps to reduce costs wherever possible.

Speaking on the Eastern Gas Board increase, also announced last week, the Chairman, Sir John Stephenson, C.B.E., said that increases in the price of gas in August, 1956, were estimated to bring in increased revenue of £660,000 as against net additional costs of just over £800,000. As he had said then, the difference, of about £150,000 had been met by internal economies and savings.

'A MODEST' INCREASE TO COME

A RISE in the price of gas will be announced by the North Eastern Board at the next Consultative Council meeting. It will affect the bulk of the East and West Ridings and a greater part of the North Riding of Yorkshire. An official of the Board described the increase as 'modest.' He pointed out that it was 12 months since prices were last increased and since then there had been a considerable advance in general costs.

Major items of increased costs, amounting to £1,285,000 a year, had arisen since April 1, 1957: Increases in coal prices amounted to £648,000; increase in wages and salaries, £235,000; increase of 93%, in rates, £134,000; and increase in rail freight charges, £268,000.

Increase in coke prices would bring in an additional revenue of £364,000 a year, reducing the net increased costs to £921,000. These figures took no account of the recent increase in post office charges (an extra £15,000 a year), higher interest charges (amounting to a further £150,000 a year), and general increases in the price of many other goods and services used by the Board.

E.M.G.B. MAKES PROVISION FOR SERVICING

A NEW tariff introduced by the East Midlands Gas Board contains a provision based on the realisation of the need for regular servicing of consumers' appliances.

As part of this optional domestic two-part tariff, available for gas used wholly or mainly for domestic purposes by a consumer in any one premises occupied as a private residence of which no part is let or sub-let, will be a fixed quarterly standing charge of 26s., which will include an amount to cover regular inspection and maintenance—roughly twice a year—of all gas appliances in the customer's house.

The Board feel that a regular service scheme like this is needed and may eventually be universally accepted for all classes of customer. The Board also feel that they are making a wise move since the larger than average domestic customer who is likely to be attracted by the two-part tariff will be making a fairly extensive use of gas and will be quickly critical of inefficient appliances.

Consumer's Undertaking

This quarterly charge will be made together with a commodity charge for all gas used. The agreed prices are: Zone 1—12.5d. per therm, or 62.5d. per 1,000 cu.ft. in the districts of supply of Epworth and Misterton; Zone 2—13.5d. per therm; Zones 3 and 4—14.5d. per therm.

The consumer must agree to take gas under this tariff for not less than 12 consecutive months and afterwards until the expiration of three months' notice in writing at any time by either party to the other.

The tariff is designed to prove attractive to domestic customers taking more than the average amount of gas and, in fact, the 'break even points' beyond which it is in the interest of the domestic customer to take advantage of the new tariff, are—Zone 1, 49 therms a quarter; Zone 2, 52 therms a quarter; Zones 3 and 4, 44 therms a quarter.

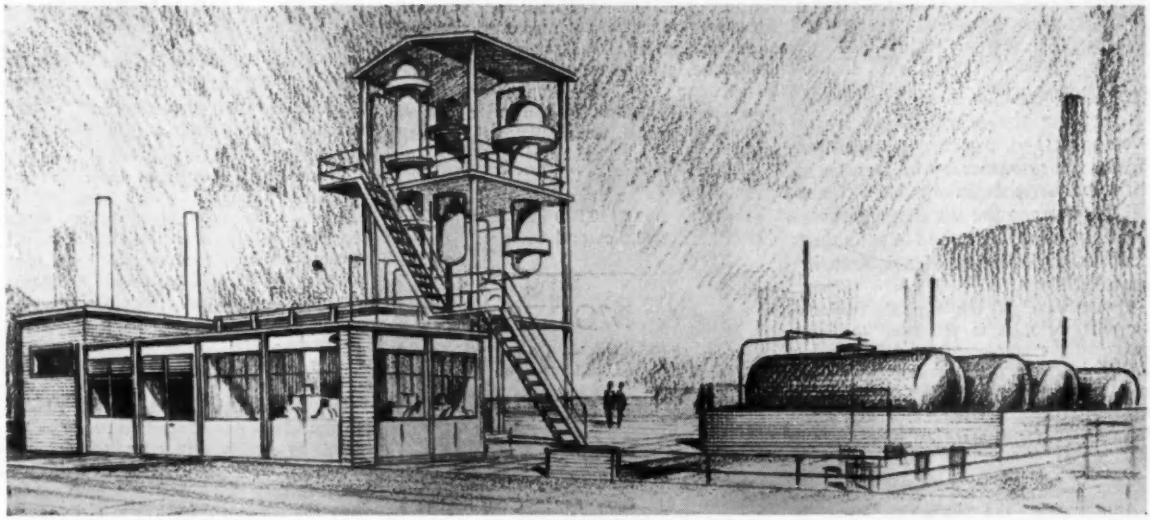
Half-price Offer Brings Enquiries

THE Scottish Gas Board is reported to be making great play, apparently with considerable success, with its offer of half-price gas under the new domestic tariff.

The alternative half-price rate was introduced when the price of gas was increased in Scotland recently. Under the scheme, consumers who use more than average quantities of gas can pay a standard charge of 39s. a quarter and they will get all their gas at 1s. 2½d. a therm—half the price of the new tariff.

'Quite a number' of inquiries have already been received from consumers, said an official of the Board. He added: 'It is an inducement to consumers, but they must calculate whether it will be worth while. Under the ordinary tariff a consumer pays 2s. 5d. a therm for the first 24 therms. It is therefore not worth while for a small consumer to use the half-price tariff.'

New Process for Hydro-refining of Crude Benzole to be Developed Commercially



An artist's impression of the plant for refining benzoles, naphthas, etc., which is being built at the Thorncliffe works of Newton Chambers & Co., Ltd., Sheffield, by arrangement with the Coal Tar Research Association.

AS the result of an agreement between Newton Chambers & Co. Ltd. and the Coal Tar Research Association this Company is to undertake the commercial development of the Association's process for the hydro-refining of crude benzole, naphthas, and other hydrocarbon oils.

Continuous Operation

This process is the result of research carried out by the Coal Tar Research Association since 1952 and employs pure hydrogen or hydrogen-containing gases such as coal gas or coke oven gas in combination with a particular catalyst for the preferential hydrogenolysis of sulphur compounds, gum-forming olefines, and colour-forming bodies, and the process gives a substantially theoretical yield of refined products.

The C.T.R.A. hydro-refining process has been developed for continuous operation which can be completely automatic to ensure that the refined products are consistently in accordance with the designed specification.

At the present time the refining of benzoles and naphthas is carried out almost universally using a batch/intermittent process of agitation with strong sulphuric acid. In addition to the somewhat uncertain results, the acid washing process results in considerable losses of spirit, and the production of 'acid tar,' disposal of which is extremely difficult. Moreover, naphthas cannot always be satisfactorily refined by washing with strong sulphuric acid.

The C.T.R.A. process differs from other hydro-refining processes for crude benzole by employing a considerably shorter contact time, thus giving a higher output for a given size of convertor and in operating at considerably lower pressures for naphtha refining. This last point is of particular importance since the consumption of hydrogen in naphtha refining is considerably reduced with consequent savings, and the undesirable conversion of aromatics to naphthenic hydrocarbons is minimised.

The choice of hydrogenating gas and the general operating conditions best suited for the desulphurisation of a particular feed stock or range of feed stocks can at present be quickly ascertained in a small laboratory scale unit. In addition to these facilities, a pilot plant capable of dealing with 500 gal. of feed stock per day has been erected at the Thorncliffe Works of Newton, Chambers & Co. Ltd.

This plant will be used to determine the optimum operating conditions, together with all chemical engineering data for any crude benzoles and naphthas. Its capacity is such that the products will be in sufficient quanity for market research or further investigation.

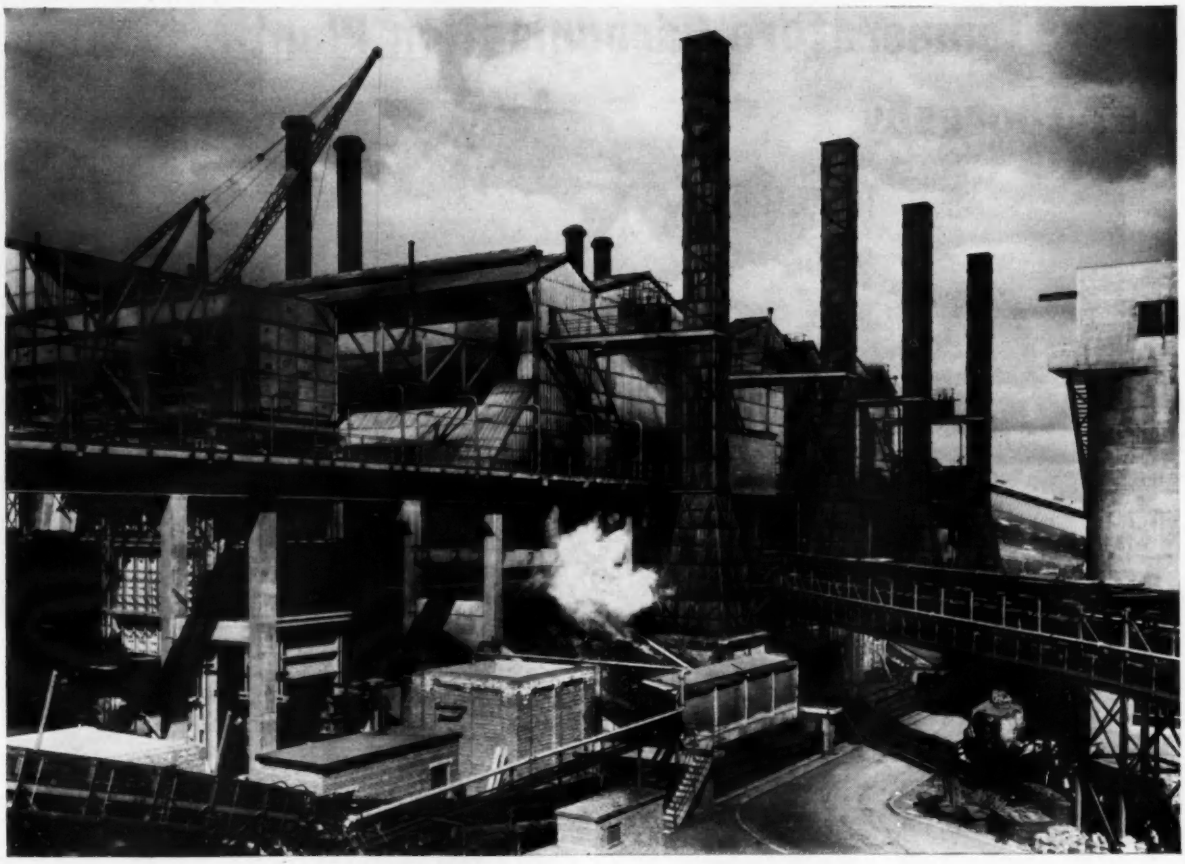
It is considered that hydrogenation is of very great potential as a chemical engineering tool generally and in the coal tar industry in particular. In this respect the pilot plant has been designed for wider operating conditions than those required for the hydro-desulphurisation of benzoles and naphthas so that it can be readily adapted for further investigations and development work in this field.

Company Forms Special Department for Sales to Heavy Industry

A NEW division of the North British Rubber Co., Ltd., of Castle Mills, Edinburgh, has been set up to handle sales of mechanical products to heavy industry. Called the Industrial Products Division, Mr. H. H. H. Helby has been appointed its Sales Manager.

The Company include among their products rubber conveyor belts used in gas undertakings. In addition, they manufacture Norflam, a new PVC conveyor belting designed to comply with the rigid and comprehensive specifications of the National Coal Board. Norflam is said to be fire-resistant as well as being waterproof, mildew-repellent, flexible enough to be used with small diameter drums, and resistant to deterioration from oils, acids, greases and alkalis.

A year ago it was revealed that the United States Rubber Company had assumed a controlling interest in North British Rubber and that a £3 mill. modernisation plan was to be implemented immediately.



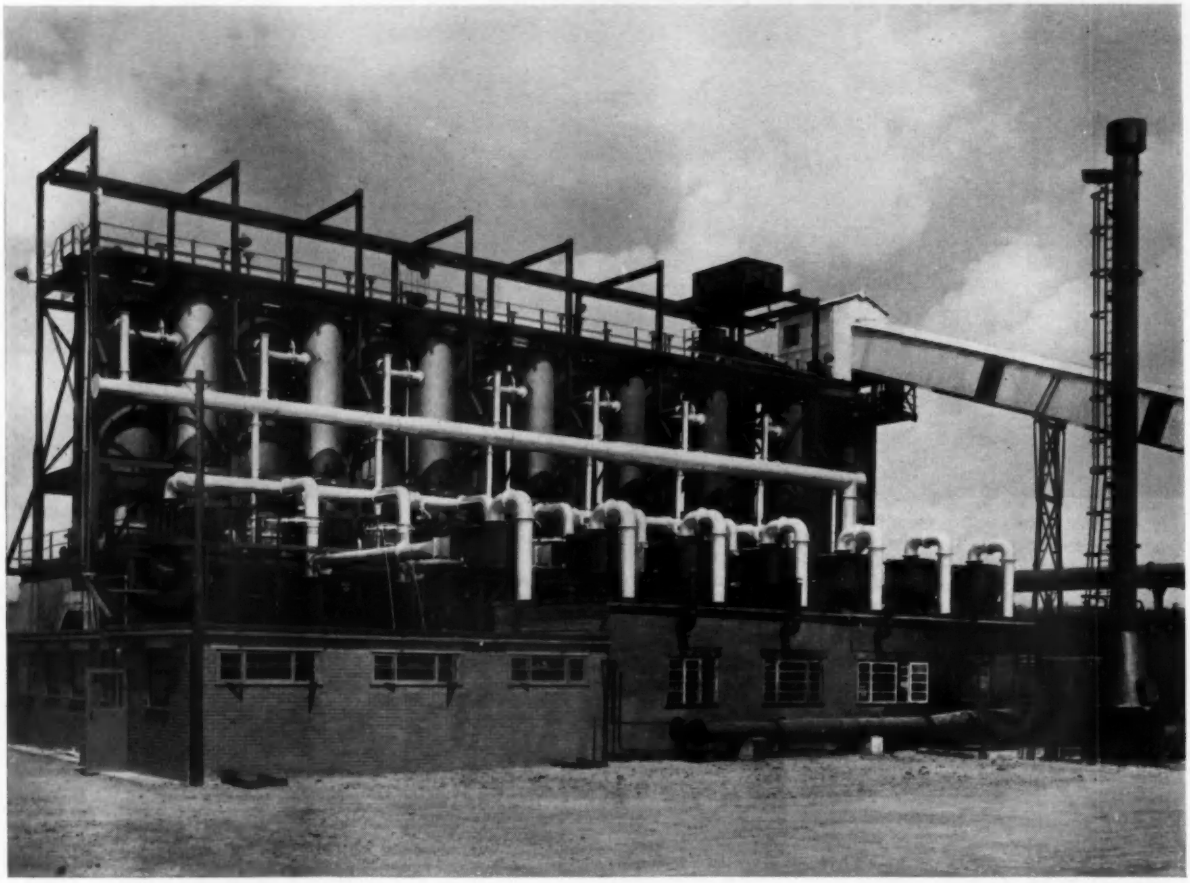
The second installation of W-D Intermittent Vertical Chambers at the Rotherham Works of the East Midlands Gas Board — two further benches of 21 chambers. When all six benches are in operation 15 million cubic feet of 500 B.Th.U. gas will be produced daily.

WOODALL-DUCKHAM CONSTRUCTION COMPANY LTD

Woodall-Duckham House, 63-77, Brompton Road, London, S.W.3 'Phone: KENsington 6355 (14 lines) 'Grams: Retortical (Southkens) London

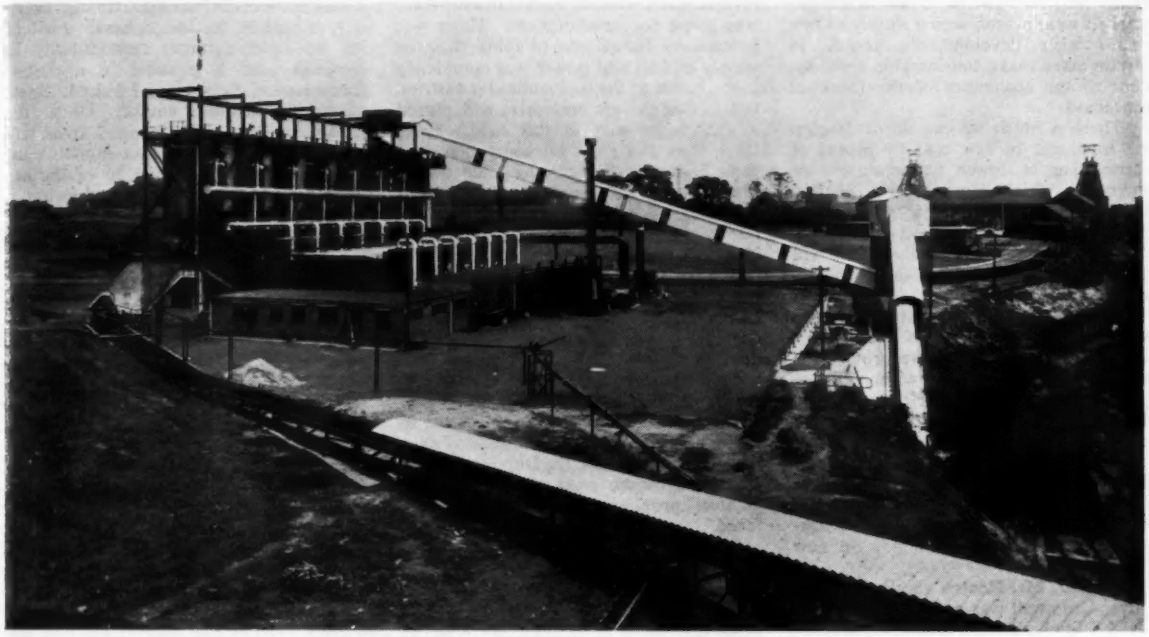
Low Temperature Carbonisation Plant at Thoresby,

installed by **Newton Chambers**



MAIN CONTRACTORS
to the
National Carbonising Co., Ltd.

NEWTON, CHAMBERS & CO., LTD.
THORNCLIFFE, Nr. SHEFFIELD



'A Great Effort by Private Enterprise'

Mr. Renton Opens New 'Rexco' Plant at Thoresby

BY pressing a button on a specially constructed dais, Mr. David Renton, Parliamentary Secretary to the Ministry of Power, discharged a retort to inaugurate the new 'Rexco' plant of the National Carbonising Co., Ltd., at Thoresby Colliery, near Mansfield, Notts., on July 19.

Mr. Renton said that although as a nation, we were not making the best use of our precious supplies of coal, this low-temperature carbonising plant for making 'Rexco' would make an important contribution to the better use of our coal supplies. 'I most certainly hope,' he continued, 'that this great effort by private enterprise, brought about in co-operation with our nationalised coal industry, will lead to not only more plentiful supplies of solid smokeless fuel from this plant at a reasonable cost, but also to further developments of a similar kind.'

After the inauguration ceremony and an inspection of the new plant, the company adjourned to luncheon.

After the luncheon, **Mr. E. D. G. Davies,** Chairman of the National Carbonising Co.. Ltd., who presided, welcomed the guests and said: 'This is a very proud day for the Company and all of us connected with it. For many years our Mansfield plant has shown the way to what *could* be done; Thoresby now shows us what *can* be done with the "Rexco" process. But even at Thoresby there are inevitably qualifications creeping in, and none of us will be satisfied until seven further retorts have been constructed.' Such an extension under present operating conditions would reduce the capital cost of the plant, expressed in pounds per ton of annual throughput, from fractionally under £3 to about £2¼—a reduction of some 25%. Furthermore, it should lower operating labour costs by more than a half.

'We must ask ourselves two questions: Are we trying to do too much, too quickly, on too slender resources? Or are we doing enough to justify the responsibility resting with us, arising from the opportunities and need to develop the "Rexco" process? We are very much aware of the great need in Scotland for a nationally manufactured smokeless coal, but we are conscious of the mistake of supplying the South with "Rexco" from as far North as this, when Thoresby should devote its output for distribution in the Midlands area. We realise the need for greater availability of high-grade smokeless fuel for the domestic coal-burning markets of the North of England. Indeed, there are many areas in this country where quality smokeless coal is either not available or is sold at such a distance from its point of manufacture that the resultant price to the consumer deters the demand and it fails to be competitive with locally-mined coal. It is our hope that one day the miners themselves may be able to use smokeless fuel and help to dispel the smokey pall which so often pervades the mining towns and villages.

Performing the opening ceremony, Mr. David Renton presses the switch to discharge coke from a retort.

'We are aware of the need to establish "Rexco" plants wherever non-coking coal is mined and consumed locally, with the object of bringing cheaper smokeless fuel to consumers everywhere. The effect of such growth places a tremendous load on our research staff in all spheres of its activities, the fullest exploitation of our tar oil, and the increasing efficiency of our plant—carbonising, handling and preparation—and making the fullest use of our large surplus of gas.

'Once we can see our way clear on domestic expansion, we believe there is also vast scope for expansion of the "Rexco" process abroad, both for treatment of oil shale and for treating many and various foreign coals—particularly the Nigerian lignites and the large coal deposits in the United States which re-

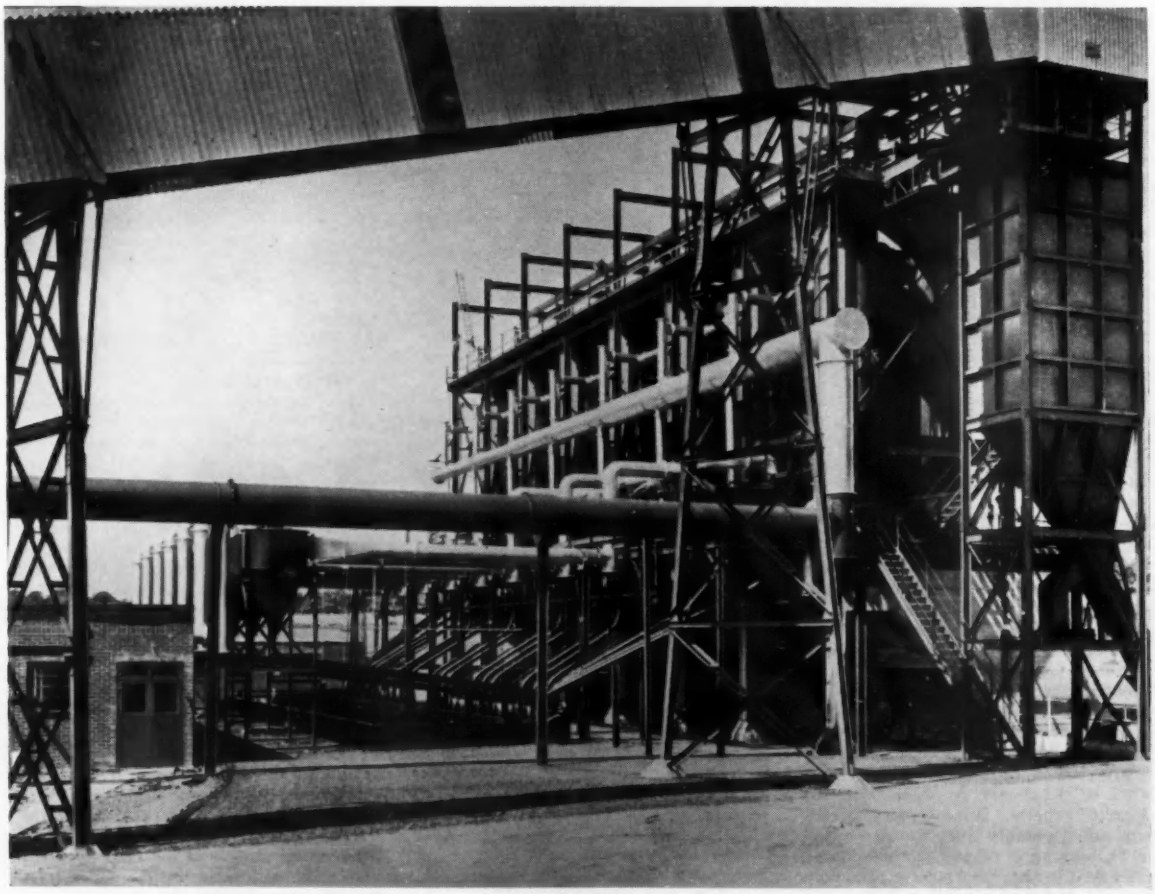
main too far distant from consumer markets to allow marketing simply as raw coal. Such developments could, in certain cases, make considerable contributions to the economies of the localities concerned.

'There is much we can do to develop the treatment of raw coal by means of carbonising at lower temperatures—an enterprise which must remain distinct from its elder and much larger brother, the gas industry. To enforce, in due time, the provisions of the Clean Air Act will require very large quantities of smokeless fuel, but in declaring the "smokeless zones," equal emphasis must be given to both the "smokeless" and the "fuel" aspects; it just will not do to provide the housewife with a fuel with which—although it may be smokeless—she cannot light the fire. Frightening sums of money are mentioned as being justified for re-equipping houses, under the new Act, with new appliances. We believe that if enough good quality smokeless coal was available, it would not be necessary to spend so much money on new devices.'

Replying, **Mr. Renton** recalled that as Oliver Cromwell was gathering his forces for the final phase in the Civil War in 1647 he had tried to persuade them to be united. This was true in our power industries today, whether they were under private enterprise or nationalised—there was scope for co-operation. There was a tendency for people to think that the supply of fuel and power was completely in the hands of the nationalised industries, but in fact private enterprise still played a very large part in this field. First, there were the great oil companies, and though in one of them the State owned the majority of the shares, it was still privately controlled. The larger part of our coking industry was owned by the iron and steel companies (most of them had been de-nationalised) and the companies and firms which distributed coal. Last, but not least, they had the notable example of private enterprise in the production of smokeless fuel. 'Rexco' was a product that was used particularly in the home, and it was this fact more than any other that lent great significance to the opening of their new plant. 'For it appears to me that the supply of fuel for the domestic market is one of the greatest problems with which we are faced.'

Continuing, Mr. Renton said: 'Our national habits in the burning of fuel are a national disgrace because too many of us tend to the belief that the only way to keep the home fires burning is to sit round an old-fashioned type of fireplace with a roaring draught through the room sending most of the warmth that is contained in the coal straight up the chimney to pollute the atmosphere! First of all we have a moral responsibility to diminish—and if possible to abolish—the nuisance, damage, and indeed, illness caused by excessive smoke. Under the Clean Air Act, smoke control areas will be created in which the householder must burn not the coal to which he or she has been accustomed all these years, but a smokeless fuel. The second aspect of the problem of domestic fuel supplies is the continuous decline, due to modern methods of mining, in the production of large coal. At the moment, we are making good that deficiency by importing large coal into this country at a considerable cost in dollars—and the difference which is paid between the importing cost and the average pithead cost at home is reflected in the subsidy to the domestic consumer.

'The need for cleaner air and for utilising small coal, require a revolution in the consumer habits of the British people. We are still all too prone to regard ourselves as the rich nation we were 30 to 40 years ago; we show that weakness in many ways, but in none is it more pronounced than in the way we use our coal resources. It is little short of a scandal that we should use coal, which is our most precious national asset,



General view of the retorts and combustion chambers.

Smokeless Fuel Plant Thoresby

The Multi-tier Switchboard for motor control on the Midland Rexco Ltd. Plant was designed, built and supplied by . . .

W. & H. NELSON LTD.

MOSSEND, BELLSHILL, LANARKSHIRE

Telephone: Bellshill 3133 and 3302

NELBEST

CONTROL

merely for burning in its raw state when we should be using it as a raw material for processing. But because our habits are so deeply rooted, the breaking of them is difficult; much slow and patient work, both of publicity and of persuasion, will be needed. And in carrying out this work of persuasion, the nature of the fuel available—and its price—will play a very important part. It is for this reason in particular that I welcome the opportunity of opening this plant.'

Development and Expansion

Commenting on the fact that the National Carbonising Co., Ltd., had been operating successfully for the last 20 years, Mr. Renton said: 'It has now embarked upon a very important programme of development and expansion which will, I am told, increase output by 1959 to nearly 300,000 tons per annum, and the completion of the Thoresby plant represents an important instalment in that programme. The Company is, therefore, in a most practical way, playing its part in meeting the need for smokeless fuel that will inevitably arise if the provisions of the Clean Air Act are to be successfully implemented.' He had learned that they were about to undertake important tests with the object of producing from slack coals a briquette that would not only withstand handling and carbonising but which would also be economical in its production. 'If you can achieve this you will be playing a crucial role in helping to solve the two problems relating to domestic fuel supplies to which I have referred.'

Mr. Renton referred to the co-operation the Company had received from the National Coal Board. He paid his own tribute to the managers and men at Thoresby Colliery and to the National Coal Board and their employees in the East Midlands Division as a whole, which had a remarkable record of output, modernisation and good labour relations. Thoresby itself was the first colliery to have completed a major reconstruction scheme since nationalisation and its record of increasing productivity was well known.

Courage and Acumen

Mr. Renton went on: 'This is not the first time that I have attended the promising opening of a low-temperature carbonising plant for coal. The last time was just over 20 years ago, in Kent, and I am sorry to say that that project was not a success. It is right to record that the "Rexco" Company has had the courage and the acumen to carry on, notwithstanding the difficulties which have been found over the years in developing this process. A good deal of money has been risked—and some of it lost—in this process, carried out by others, but I don't think that one should do other than pay tribute to those others who were prepared to risk their money and make an effort to achieve what is so much in the public interest.

'During the passing of the Clean Air Act, the Government were pressed from time to time to say exactly what supplies of smokeless fuel were available for the implementation of the Act, and now that the proceedings of the Clean Air Act are to some extent part of history, may I say that it was impossible to forecast with precision what supplies would be available. No Government could have done so, but the point is that the demand is already there, and is increasing all the time, and those who are prepared to use their enterprise—whether it is private enterprise or public enterprise—to meet that demand are pretty sure of a good return. And certainly, in the Ministry of Power, we have great hopes of the continued development of the smokeless solid fuels industry.'

Closing the luncheon proceedings, **Lieut. Colonel Vaughan Cowell,** Director of the National Carbonising Co., Ltd., said that 'the difficulties the Company had experienced in the past had not been those of technical development, but of not being allowed to get coal until 1948, and the difficulties of getting machinery and other things of that nature—a controlled price for years shillings under the cost of production. He stressed the consideration the Company had received from the Ministry of Fuel and the East Midlands Division of the N.C.B. He also referred to Newton Chambers & Co., Ltd., of Sheffield, 'who have erected this very fine plant.'

Closing, Lieut.-Colonel Vaughan Cowell remarked: 'The Prime Minister, a few days ago, said that "Scientists are always ahead of politicians." He might have added: "And so is the enterprising industrialist." And although he did not say it, I think he must have had it in his mind when he invited Lord Mills to be Minister of Power.'

TECHNICAL ASPECTS OF THE NEW PLANT

Reviewed by Our Technical Editor

THE plant, for which Newton, Chambers & Co., Ltd., of Sheffield, are the chief contractors, will manufacture 'Rexco,' a solid smokeless fuel suitable for the domestic grate and boilers for domestic hot water. It is claimed by the Company that this fuel will meet all the objections normally raised about the ordinary manufactured domestic fuels, in that not only is it perfectly smokeless but it is so reactive that it can be lit more easily than raw coal, with sticks and paper, without having to install a special grate to burn it satisfactorily. This is an important point and solves one of the chief difficulties which the manufacturers of such fuels must contend with. It is not until such problems are satisfactorily solved—and these problems are being solved by manufacturers of patent fuels—that there can be any reasonable chance that the housewife will be prepared to change from the fuel she has always known and and in which she has confidence, to one of which she is completely ignorant and for which she must be prepared to pay more.

Historical Note

The National Carbonising Co., Ltd., was incorporated in 1933 to take over the assets and patent rights of a company known as the Coal Research Syndicate, which in turn had introduced a low temperature carbonisation process from America. Thus the Company acquired the patent rights of the 'Rexco' process and assumed the responsibility of developing it in this country from the pilot plant stage. In spite of the failure of many such undertakings which had been formed to exploit processes for the manufacture of smokeless fuels by low temperature processes, the 'Rexco' process was developed and the fuel was successfully manufactured on the commercial scale. The coming of the war prevented the modernising of the original plant at Mansfield and the installing of the necessary handling plant. It was not until 1948 that enough coal became available for the plant to be run to full capacity. By that time many modifications and improvements had been devised, and so before building an entirely new plant, a third unit was added to the two already in being at Mansfield. This was completed in 1954. This new unit proved to be so successful that it was decided to build the new plant at the Thoresby Colliery.

Unique Process

The 'Rexco' process of low temperature carbonisation is unique in that it makes use of a completely non-coking coal. The coal is charged into the retort from which the air is excluded in the ordinary way and hot gases, made by the combustion of gas formed in the process, are passed through the charge. The charge is later cooled by passing through coolant gases and finally discharged. The product may be considered as being the result of extracting the tar- and smoke-producing constituents from the raw coal at a temperature of about 750°C. The effect of this treatment is to form an extremely reactive but completely smokeless fuel. So reactive is it that the quenching of it on discharge must be very thorough to prevent it re-igniting and burning away.

Although the process has the distinct advantage of using a non-coking coal, when the reserves of coking coals are diminishing and demand for the manufacture of metallurgical coke is continually increasing, it has the disadvantage of having to use sized coal. In the new plant two sizes, a large and small nut, are charged in the proportion of 2:1 in favour of the larger size to yield a product where the proportion has changed to 2:1 in favour of a smaller size. To overcome this difficulty, attempts are being made to manufacture a satisfactory

briquette from small coal which will withstand handling and carbonising.

'Rexco,' like other manufactured smokeless fuels, has to compete in price with raw coal and other less expensive fuels. This competition is accentuated somewhat by the fact that the cost of production of 'Rexco' depends on that of the primary product and has little or no assistance from the sale of by-products. Whereas, in the conventional carbonisation processes a considerable income may be realised from the sale of tar, benzole, ammonia, and coke or gas, the only ancillary product available is a low temperature tar, since the gas, with an average C.V. of about 140 B.Th.U. per cu.ft., is burnt in the process and any excess is flared to waste.

Seven More Retorts Planned

The National Carbonisation Company are hoping to be able to add to the new plant at Thoresby Colliery and install a second unit of seven retorts. There seems every reason that this hope will be realised, since the demand for the fuel is on the increase and the potential output of both products from the Thoresby Colliery plant have been virtually disposed of for several years to come.

The siting of the new plant is particularly happy. Full wagons of the non-coking coal can be 'dropped' down by gravity to the unloading point at the plant from the colliery by the plant personnel. The coal can be stored until needed, conveyed by belt conveyor, and charged directly into the retorts. The product on discharge after quenching and screening can be immediately loaded into wagons which in turn are 'dropped' down by gravity to the British Railways' sidings.

More Surplus Gas Available

With the completion of such an extension at some future date, an increase in the amount of surplus gas available should help to decrease the cost of the product. At the moment a small amount of steam is raised by this surplus gas and anything over is merely burnt to waste, but with the future extension the quantity of available gas is estimated to be about 300,000 cu.ft. an hour. With this quantity of gas, the adjoining colliery might consider it worthwhile to install a gas turbine electric generating plant for the production of power for all its needs. It has been calculated that at present prices such a scheme would pay for itself in about three years.

With this and the income from the extra tar, together with a reduction of labour charges for manufacture by more than 50% and capital cost per yearly output of product by 25%, the company hope to be able to reduce the price of 'Rexco' to a figure which compares favourably with that of the best house coal.

The plant at Thoresby colliery consists of seven retorts, complete with mechanical handling plant for the charging of these retorts, the screening of the product, and the loading of wagons for despatch. All prime movers are electrically driven by power from the electricity grid. Each retort has its own individual exhauster and gas washer. Tar and liquor from all the retorts are collected and separated in a large central rectangular tank. At the outlet of each exhauster the gas enters a common main through which it passes to the combustion chamber for the carbonisation process. Surplus gas is bled to the auxiliary steam boiler when necessary or to the flare for burning to waste.

Details of Retorts

The 'Rexco' process is carried out in large cylindrical intermittent vertical retorts. These are heated internally by drawing hot gases from external combustion chambers downwards through the charge of coal. The tarry vapours which are the smoke-producing constituent of coal are thereby driven off, and subsequently recovered as low temperature tar oil.

Each retort consists of a mild steel plate shell, lined with fire-brick, 10 ft. in diameter by 25 ft. high, having a bottom door with a fire-brick grate, a charging door on top and a side top inlet from an adjoining chamber of similar construction. The bottom door is the full diameter of the retort, and has six flanged wheels on which it can be moved horizontally on two rails by a power-operated hydraulic ram. Starting with this door closed and sealed with fire-clay, and with a 34-ton charge of coal in the retort, the charge is heated for six hours and then cooled or quenched by drawing cold gas

REINFORCED CONCRETE AT THORESBY

THE CIVIL ENGINEERING AND REINFORCED CONCRETE

WAS CARRIED OUT BY

HOLST & CO LTD

Civil Engineering Contractors, Reinforced Concrete

Head Office: 46 Clarendon Road, Watford, Herts. *Branches: Birmingham, Manchester, Leeds, Durham, Edinburgh, Cardiff*

On H.M. Admiralty, Army and Air Ministry Lists

PICKLES, AYLAND & CO., LTD.

Managing Director : L. KILBANK

Dept. G.J., SOWDILL WORKS, OSSETT, YORKS

PAINTING CONTRACTORS

Specialists in Industrial and Constructional Steel Painting

Estimates given for any kind of Painting and Decorating work

Telephone : Ossett 92 **Telegrams : "Kilbank, Ossett 92"**

through it for six hours. The retort is then isolated and the bottom door is opened.

The carbonised coal, which is now low temperature coke or 'Rexco,' falls out of the retort into a receiving wharf below. This wharf, which is constructed of reinforced concrete lined with blue bricks, has small sliding outlet doors at the base of its sloping sides, and the 'Rexco' is run off through these after it has been sprayed with a minimum amount of water on to a conveyor belt below. This spraying is necessary to prevent the immediate re-ignition of the warm, highly reactive fuel. It is then conveyed to a screening plant and graded into sizes required by domestic consumers, large 'Rexco' for open fires, 'Rexco' nuts for boilers and heat storage boilers, and 'Rexco' beans for small central heating installations. From each 34-ton charge of coal about 24 tons of 'Rexco,' 700 gal. of tar oil, and 28 therms of gas are obtained.

Consumption 350 Tons per Day

There are seven retorts, as previously described, which can handle a total of 350 tons of coal per day. All coal carbonised is best quality Top Hard, and comes in two sizes, namely washed large nuts—4½ in. by 2½ in.—and washed small nuts—2½ in. by 1½ in. This is brought from the adjoining Thoresby Colliery in main line railway wagons to the 'Rotaside' tippler on the plant's siding and tipped into a large concrete hopper. After being emptied of coal, the railway wagons pass from the wagon tippler down the sidings to the 'Rexco' bunkers where they are filled with graded 'Rexco,' weighed and prepared for despatch. A reciprocating tray feeder at the bottom of the coal hopper feeds the coal at the rate of 60 tons per hour on to the first conveyor which is 220 ft. long and elevates the coal into the large and small nuts bunkers. From these bunkers which have a capacity of 75 tons, the coal is taken as and when required by means of tray feeders on to the second conveyor which is 200 ft. long and raises the coal 60 ft., discharging it over a vibratory screen to remove fines and dust. These fines fall into the fines bunker, which can hold 40 tons, and are removed from it by road vehicles for resale. The cleaned coal which has passed over the screen flows to a further conveyor for retort charging. This conveyor runs horizontally along the top of the plant and is fitted with a travelling throw-off carriage or tripper which can be positioned to feed coal to any of the seven retorts. This is done through a telescopic tube or chute, which is lowered into the retort within a few inches of a bed of coke previously placed on the grate of the retort bottom door. The chute is raised slowly as charging proceeds to prevent the coal from being shattered by a long fall.

Charging Operation

This charging operation takes approximately 40 minutes and carbonisation of the charge is then begun by passing hot products of combustion from the retort's combustion chamber through the body of the charge. These hot products and the coal gas which they generate are drawn away by suction provided by an electrically driven fan-type exhauster revolving at 3,000 r.p.m. This gas mixture passes through the retort grate to a wash-box where it is cooled by cold ammoniacal liquor sprays which remove most of the tarry vapours and ammonia.

The resultant gas, which is now cool, has a calorific value of about 140 B.Th.U. per cu.ft. Still carrying liquor and tar droplets it is pulled through a cyclone in which some of this droplet matter is removed by centrifugal action. The gas then passes through the exhauster previously mentioned and proceeds under a pressure of 6 in. W.G. through a static washer where cold liquor sprays and porcelain ring fillings remove the remaining tar and liquor droplets. Part of it is returned to the gas burners at the base of the retort combustion chambers, where it is burned under controlled conditions of gas and air admission; a small amount is used to generate steam in a gas-fired boiler, and the remainder passes through a flame trap to the flare stack where, at present, it burns to waste. Plans for the productive utilisation of this gas are at present being formulated.

Hot tar and liquor from the various items of plant are returned to a concrete settling tank, in which tar sinks to the bottom and is then pumped to tar storage tanks of 400 tons capacity for subsequent despatch by road to tar distillers. The hot liquor is pumped by centrifugal electrically driven pumps to an open-cooler where its temperature is reduced to 30°C. This cooled liquor returns by gravity to one bay of the settling tank where it is picked up again by similar pumps and used for cooling and washing purposes in the washboxes and elsewhere. Arrangements for the use of the surplus liquor as a land fertiliser have been negotiated.

The plant was designed, fabricated and erected by Newton Chambers & Co., Ltd., under the co-ordination and supervision of the National Carbonising Co., Ltd. Holst & Co., Ltd., of Leeds, were responsible for all concrete structures and foundations, and Pickles Ayland & Co., Ltd., of Ossett, carried out all the painting of steel work.

The installation has been so arranged to allow for a further seven retorts to be erected at a later date, bringing the total capacity of the plant to 700 tons of coal per day.

Company is to Increase Capital

RESOLUTION to increase the capital of Ewart Holdings, Ltd., to £500,000 by the addition of £150,000 divided into 3 mill. shares of 1s. each was passed at a meeting last week.

Addressing the meeting, Mr. A. E. Johnson, the Chairman, said:

'Your Board is pleased to inform you that contracts are in process of being negotiated for three and not two companies as mentioned in my statement. These acquisitions conform to the general pattern and trend of our industry and will transform our assets, cash and profit-earning potential.

'As soon as negotiations are completed shareholders will be given the fullest details of the records of these companies and their future prospects.'

Scheme Abandoned

Willenhall Urban District Council is to be asked by the Housing Development Committee to buy back from the West Midlands Gas Board land which the Board purchased at Sandbeds in 1951 with a view, since abandoned, to erecting a gasworks.

New Metallurgical Laboratory is Opened

British Welding Research Association

A NEW metallurgical laboratory of the British Welding Research Association at Abington Hall, near Cambridge, was opened last month by Marshal of the Royal Air Force, Lord Tedder, G.C.B.

The building has a welded portal frame structure designed in accordance with the plastic theory, which has been developed by Professor Baker at the University of Cambridge, with financial support from the Association.

The welding laboratory is equipped for manual and automatic welding. A specially designed instrument panel enables the welding variables to be measured and recorded automatically in an observation room from which the progress of welding operations can be followed.

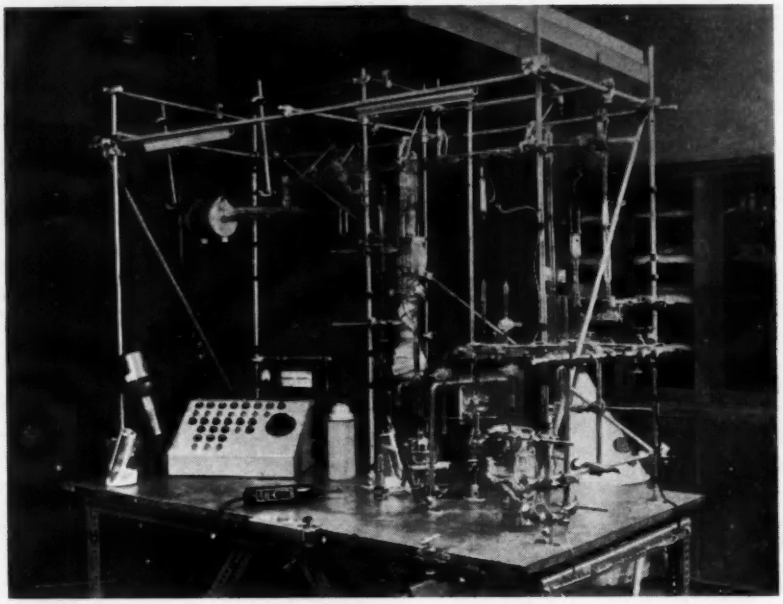
Provision is made for research on the welding of reactive metals and on heat flow in welding. There are well equipped laboratories for chemical and gas analysis, metallographic examination, heat treatment and mechanical testing.

The successful solution of the problem of joining different metal parts together is often the key to successful design and economic production. In this way the problem of welding may become the cardinal problem of design and production on whose successful solution everything else depends. The use of welding raises new problems of design and manufacture which are not really welding problems but which are, nevertheless, inseparable from the application of this method of joining.

With the introduction of welding into engineering manufacture more and more problems arose which required for their solution proper scientific approach and investigation. This is partly due to the fact that welding requires heat and that the application of heat has a profound effect on the mechanical behaviour of engineering materials. This, however, is not the only reason.

It soon become obvious that conventional methods of design and analysis for engineering constructions which had been adequate for decades became inadequate when applied to welded structures. Welding is such a versatile method of construction that it is impossible to decide, without scientific investigation, which particular one of several possible alternatives is best.

This is why the Association, quite apart from its investigations into the different welding processes and their effect on mechanical properties of materials, also finds it necessary to engage in engineering researches, of which its work on pipe lines, pressure vessels, fatigue and frame structures are examples.



Low pressure gas analysis apparatus.

The work on frame structures, which has been pursued by Professor Baker at the engineering laboratory of the University of Cambridge for many years with the active support of the Association, is a particularly good example to show that the use of welding may change the whole character of the structure, requiring a completely new approach to design.

The facilities available to British industry at Abington are unique in the world and in many of its researches the Association is far ahead of every other nation. While the Association's work is widely known and admired abroad it is unfortunate that British industry is not fully conscious of the unique asset they have in this institution.

The Association and its Members feel that they have a special responsibility in pressing the authorities, such as the Ministry of Education and the University Grants Committee, with the need for proper training facilities. Unless such facilities are created soon an urgent need of industry will remain unsatisfied and the work of the Association will not be applied by industry to the fullest extent possible.

Majority of Scots 'Guinea Pigs' Express Satisfaction with Coke

AN investigation carried out with the co-operation of 100 householders in the smokeless zone area of Gracemount, Edinburgh, has helped the Department of Health for Scotland to prove that coke fires are not harmful.

A condition of tenancy in the district is that only smokeless fuels will be burned. The tenants agreed to burn nothing but coke, and members of the investigation team visited the houses 130 times during a four-month period to watch the experiment. The findings show that there is no danger of chronic carbon-monoxide poisoning, provided the flue is efficient.

Of the guinea-pig householders, 84% declared themselves satisfied with coke, while 8% were 'dubious'; 7% were dissatisfied, while only 6% complained of fumes. However, 50% complained of sparking, which was worst when the fire was being lighted.

Officials of the Scottish Gas Board have also been paying regular visits to tenants in the Gracemount area and agree that 84% of the householders are satisfied with their coke fires. With reference to the dissatisfied minority, Mr. R. Dunnett, Public Relations Officer of the Board, states: 'We have asked for further details so that any necessary help and advice may be given to such individual tenants who are not at present sharing the benefits enjoyed by the vast majority in Gracemount.'

PLANNING FOR AN EMERGENCY

Floods in 1955 caused fantastic damage in Waterbury Common at the Bank Street bridge. Gas mains across the bridge were ripped and broken as flood waters destroyed houses, ripped out railway tracks, and carried debris from upriver to lodge against the battered bridge. Lessons learned here are being carried out in Connecticut Light and Power Company's emergency and disaster plan.

ALTHOUGH we do not have to face the extremes of weather which yearly lash the North American continent, we are occasionally visited by freak conditions capable of inflicting considerable damage. It may therefore be of interest to examine the emergency and disaster plan worked out by the Connecticut Light and Power Company, of Hartford, Conn., following a succession of serious afflictions by the weather—including three hurricanes in 1954 and three more in 1955.

Though first conceived to meet the repeated threats of damage to the Company's electric system, the plan has been enlarged to cover the specific problems of a gas system disaster—problems that are unique to the gas industry.

The plan provides for setting up a disaster operations headquarters, staffed by the various sections under a system director for overall supervision and assistance. These sections include accounting, construction, dispatching, employee relations, public relations, purchasing, etc.

It is the responsibility of the system director and the director of gas operations to arrange deployment of personnel to the stricken area from other districts and from other gas companies.

Reluctance to call on others for help delays restoration, and pride in the ability of a local organisation to handle its own affairs should be discouraged if the result is extended service interruption. The Company considers such co-operative effort by the various neighbouring utilities is possible only by a continuing understanding of mutual problems.

The general staff is organised for direction of the emergency forces and is also prepared to send in trained staff, men, materials, and equipment to augment the local organisation as required.

Each gas division and district is organised under the division or district gas engineer, with each employee assigned to and previously trained in emergency duties. The gas shut-off operation can be consummated with less experienced men than the turn-on. Salesmen, meter readers, and others lacking in gas servicemen qualifications but trained for the emergency, when occasion demands, will rise to unexpected heights of endeavour even under extraordinary circumstances.

The various supervisors are provided with company telephone directories for their homes so that they can call in their own sections at home without tying up the Company telephone board.

Made ready in advance are packages containing, among other items, sufficient copies of distribution maps by streets showing location of mains, regulator stations, etc., which will be ready for the turn-off and turn-on crews, with blown-up copies for the engineer and service supervisor or co-ordinator—ready for use at permanent or temporary headquarters. Maps, as well as the overall plan, are brought up to date each year.

Also prepared in advance are lists of contractors, and equipment, who may be called on for help—excavating and grading, plumbing and heating, general construction, electrical, etc.—together with lists showing restaurants, caterers, hotels, motels, and rooming houses; other lists include town officials, Civil Defence, and social service agencies.

Experience has shown that, in a disaster like the 1955 floods in Waterbury and the Naugatuck Valley, where all sorts of services including water are affected, it is much better for those crews, imported from outside districts or companies, to be housed out of the stricken area and be transported each day by bus to the job.

This arrangement makes possible better opportunities for the men to keep clean, have two good meals a day—with a hot lunch provided, if possible—and get adequate sleep. Setting up cots and feeding the great numbers of men in the disaster area has proved false economy. Working the men into the night or too many hours, other than where the interruption is for a short period, will result in extra-

ordinary fatigue with its accompanying loss of efficiency and safety.

The emergency and disaster plan provides for receiving these men brought in from outside the local area, housing them, and distributing them by areas and teams, under their own supervisors but aided by local field supervisors who are familiar with the area.

It must be recognised that it is possible to have groups involving several different unions with different contractual working conditions and therefore, keeping the groups in separate working units has many advantages. The Company call these fellows 'foreign crews,' not in the sense that they are foreigners to be looked down on, but rather to differentiate them and provide for them, as very welcome friends.

It must be noted that just having many men would not necessarily expedite restoration, especially if they were inadequately organised. Rather, it causes confusion, together with loss of morale and a slackening off of the effort.

The emergency and disaster plan, therefore, provides for a realistic approach to each disaster, a rapid and considered appraisal of the damage, and a co-ordinated restoration effort. Included in this last is a related and sometimes considered subsidiary activity, yet a very important Company responsibility—that of public and employee relations, keeping customers and employees informed of the degree of disaster, the awareness of the problems involved; and keeping safety ever uppermost in everyone's mind.

Full Use of Radio

Full use of available radio, TV, and newspaper facilities should not be spared to keep the public informed of progress and ready for the turn-on operation. The fact that the Company received no word of criticism in the flood of last year is a tribute to the adequacy of their information service.

One side line to this question of publicity is pictures. Confucius said appropriately, 'One picture worth 10,000 words.' Unless photographers are assigned in advance and made a part of the emergency plan, there will be no continuous and complete pictorial story of the disaster.

Photography in a gas disaster has certain limitations. The photographer cannot be everywhere at once and on the spot when something happens. Then, too, gas main failures underground do not often lend themselves to exciting, eye-catching pictures. However, primed by training in advance for the kinds of human interest stories that a gas interruption engenders, and inspired by the restoration job being done, a photographer can help tremendously to get the Company story across to the public. Pictures prove particularly helpful when co-ordinated with good news releases.

Another phase of operations of the public relations and publicity sections is telephone communications. In the Company's larger gas districts it has been possible to list *emergency telephone numbers* separately in the telephone book.

One listing covers all service, meter and trouble calls, the second, other business calls. With such an arrangement, the normal service and trouble calls bypass the PBX operator and go directly to a service centre where the customer location file is kept. Calls at this location are handled in rotation by a group of 'trouble' clerks.

Additional positions are provided so that in case of emergency, the number of 'trouble' clerks can be easily expanded to accommodate the abnormal number of calls received. Such service centres have been located so that they are adjacent to the operating personnel, which greatly facilitates the despatching of trouble calls during times of stress.

Despatching early in a disaster can present some serious problems, particularly when all telephone communication is suddenly cut off and the despatcher finds himself marooned. Such was one experience in the August, 1955, flood. Arrangements for emergency telephone connections were soon under way, but in the meanwhile short-wave radio breached the gap.

Traffic Congestion

Radio came to the rescue in the early stages too when one of the worst problems—traffic congestion—was at its worst. With bridges out, the city and valley cut in two, with sightseers and workers from closed factories piling into the disaster area, even the local police working night and day proved hopelessly inadequate to meet such disruption. Not until appeals to the state officials resulted in martial law and the arrival of the National Guard, was order brought out of this chaotic traffic condition in Waterbury. and restoration activities expedited.

Again, when co-ordination of field forces for the turn-on operation was in progress, despatcher-to-truck and truck-to-truck radio transmission afforded instant and on-the-spot control, saving untold hours—under such circumstances, the radio was silenced in adjacent districts to avoid all possible interference.

In the Company's gas system planning, great thought has been given to interconnection of pipeline supply and alternate use of various combinations of mixed gases to provide for different emergency situations. The supply is not on straight natural gas throughout the territory, and therefore some possibilities along these lines may be of interest.

In Waterbury, for instance, where there is a modern gas plant, natural gas is reformed to 420 B.Th.U. gas and enriched with straight natural gas to yield 565 B.Th.U. gas for distribution, This plant also produces carburetted water gas for peak load at certain times. In some natural gas locations, propane-air reserves are ready for use. Four standby propane plants are installed and another is under construction. These plants are always ready for operation by trained men. There is also an interconnection point near the centre of the state, where the two natural gas transmission pipelines can be quickly tied together.

One important aspect of the lessons learned from the floods—in some cases five times any maximum *ever* recorded—which destroyed a dozen bridges and gas mains with them is that river and even small brook crossings appeared in a new light.

As far as possible, where bridge spans offer a vulnerable weakness to the gas system, the Company is taking steps to bury the gas main in the river bed, to run parallel lines with valved off headers, or re-route the mains to a safer location.

Loss of Vehicles

The loss of cars and trucks in the August, 1955, flood also gave food for thought—a $250,000 loss was encountered in Waterbury alone. Although all sorts of passenger cars and delivery trucks are available for rental at a moment's notice, it is thought prudent to delay the turn-in of some special-body trucks when replacement time comes along. A small fleet of these 'old shoes' is therefore being held in reserve for use temporarily by gangs that may have to be flown into the state during the early days of a disaster. Actually, of course, upkeep is kept at a minimum and turn-in value is so low that such a course of action is permissible. The Connecticut Light and Power Company and the United States Government each has its moth-ball fleet!

It might be asked, 'If these major disasters to a gas system occur only once in every ten or 15 years, how can interest in the organisation be kept alive?'

To answer this question, the Connecticut Light and Power Company has set up in the emergency and disaster plan a schedule of annual revision and re-examination of problems and assignment of duties, and provision for training of both old and new people. In addition, a questionnaire is sent out to the districts at the same time, which in the years to come will include items requiring some local reappraisal in regard to readiness to handle gas system disasters.

Sc.G.B. EMPLOYEE IS JAILED FOR EMBEZZLEMENT

ROBERT Harkness Borthwick, a 42-year-old Edinburgh clerk, was sent to prison for 60 days at Edinburgh Sheriff Court last week when he pleaded guilty to embezzling £57 from the Scottish Gas Board between April 1954 and September, 1956, while in their employ.

It was stated that Borthwick was employed in the legal department and his main job was to recover unpaid accounts. He committed the offences by issuing official receipts when accounts were paid and retaining the money.

A solicitor said that during his period of employment with the Board, Borthwick had recovered thousands of pounds from unpaid accounts. He had never been in trouble before. The offences were committed because of financial trouble.

From a paper to The Manchester District Junior Association of Gas Engineers and The Yorkshire Junior Gas Association

Some Unasinine Requirements Concerning the Law on River Pollution and the Disposal of Trade Effluent and Suggestions for Change

By COLIN W. SMETTEM,
SOLICITOR, NORTH WESTERN GAS BOARD.

THE temptation is always present, when looking at any branch of the law, to suggest ways in which it could be improved; to suggest that it should be something different from what it is because we think it ought to be so. With your support I propose to succumb to that temptation when talking about the law of river pollution as it affects the gas industry. It is always well to have some excuse for not resisting temptation. The excuse tonight is that other people are looking critically at the law on this subject. A Sub-Committee, under the Chairmanship of Sir Frederick Armer, of the Central Advisory Water Committee has been appointed to consider the existing legislation and the operation of the common law with regard to the disposal of trade effluent. The standing of these Sub-Committees may be judged from the fact that the report of the Rivers Pollution Prevention Sub-Committee, appointed to investigate measures for strengthening the law regarding the prevention of pollution of rivers and streams, formed the basis of the Rivers (Prevention of Pollution) Act, 1951. Furthermore, there is a mounting clamour from local authorities for the abolition of what are popularly known as the prescriptive rights under the Public Health (Drainage of Trade Premises) Act, 1937.

The Existing Law

Let us first therefore consider the existing law, and then some suggestions for its change. In the Gas Act, 1948, by far the most important provision is paragraph 32(1) of the Third Schedule. It reflects the terms of different enactments going back to the Lighting and Watching Act of 1833:—

> 'If an area board cause or permit to be brought or to flow into any river, stream, aqueduct or inland water or drain communicating therewith any waste product or other substance produced in making or supplying gas, or wilfully do any other act connected with the manufacture or supply of gas whereby the water in any river, stream, aqueduct or inland water is fouled, the Board shall be liable:—
>
> (a) on summary conviction, to a fine not exceeding fifty-pounds and to a further fine not exceeding ten pounds for each day during which the act constituting the offence continues after the expiration of twenty-four hours from the service of notice on the board that it is being committed; or
>
> (b) on conviction on indictment, to a fine not exceeding two hundred pounds and to a further fine not exceeding twenty pounds for each such day as aforesaid.'

Re-reading the earlier part of this paragraph reveals that it creates two offences: (i) Discharging into any river, etc., any waste product or other substance produced in making or supplying gas, and (ii) wilfully doing any other act connected with the manufacture or supply of gas whereby the water in any river, etc., is fouled.

The first offence may thus be committed by the discharge of an innocuous waste product. It is not an ingredient of this offence that there should be any fouling of the watercourse. This ingredient is only required for proving the second offence, which would include for example the draining of polluted surface water into a watercourse. There is thus an absolute prohibition against the discharge of any waste product or other substance produced in making or supplying gas, whatever the quality of that waste product or substance. For the second offence it would be a defence that the watercourse were fouled already, unless of course the discharge made it fouler than it already was. This fact would be determined at the actual point of discharge, and not by a consideration of the quality of the water above and below that point.

Under the terms of the Rivers (Prevention of Pollution) Act, 1951, a person commits an offence under Section 2 of this Act (a) if he causes or knowingly permits to enter a stream any poisonous, noxious or polluting matter; or (b) if he causes or knowingly permits to enter a stream any matter so as to tend either directly or in combination with similar acts (whether his own or another's) to impede the proper flow of the water of the stream in a manner leading or likely to lead to a substantial aggravation of pollution due to other causes or of its consequences.

If the polluting matter passes into the stream from a sewer or sewage disposal works vested in a local authority they and not the person lawfully discharging the matter into the sewers will be responsible for any contravention of Section 2. Section 5 empowers the river board to make bye-laws prescribing standards for the purpose of determining when the matter is to be treated as poisonous, noxious or polluting for the purposes of the Act.

In exercising these powers of prescribing standards the river board is to have regard to the character and flow of the stream, and to the extent to which it is or may in the future be used for industrial purposes, fisheries, water supply, agriculture, transport, or navigation. The section makes it clear that different standards may be prescribed for different lengths of the same stream, and that the standards may provide that matter shall be regarded as poisonous or polluting by reason of its temperature, or its effect in discolouring a stream, depending upon the relation between the volume and rate of flow of the water of the stream and the volume and rate of discharge of the effluent.

By-laws Not Confirmed

No by-laws under this section have yet been confirmed. In general the by-laws under Section 5 will be directed to control discharges existing at the date of the passing of the Act. Discharges after that date are controlled by river boards under Section 7 of the Act. Under that section the consent of the river board is necessary before any new or altered outlet for the discharge of trade or sewage effluent is brought into use, or a new discharge of such effluent is begun, but consent is not to be unreasonably withheld. The river board may grant consent subject to conditions relating to:—

(a) in the case of a new or altered outlet, the point of discharge into the stream or the construction of the outlet, or the use of that or any other outlet for trade or sewage effluent from the same land or premises;

(b) in the case of a new discharge, the nature and composition, temperature, volume or rate of discharge of the effluent.

The definition of 'new discharge' is far reaching. It means a discharge which is not, as respects the nature and

composition, temperature, volume and rate of discharge of the effluent, substantially a continuation of a previous discharge made within the preceeding 12 months, whether by the same or a different outlet. Any substantial change in the conditions of effluent disposal (other than a reduction in temperature, volume or rate of discharge) will bring a discharge within the the terms of the section to require the consent of the river board.

The foregoing provisions of this Act apply to non-tidal waters. If it is proposed to discharge an effluent into tidal waters then the only provisions of this Act which apply are those of Section 7(16) which require notice as therein defined to be given to the appropriate river board. There is however this qualification to make. A river board may apply to the Minister of Housing and Local Government for an Order applying the anti-pollution provisions of the Act to tidal waters. In that case the provisions of Sections 2, 5, and 7 outlined above would apply.

Other statutes which should be noted are The Salmon and Freshwater Fisheries Act, 1923, and The Oil in Navigable Waters Act, 1955. The former Act makes it an offence to pollute waters containing fish to such an extent as to make it poisonous or injurious to fish or their spawning grounds, spawn, or food. The latter Act prohibits the discharge of oil, or mixtures containing oil, into territorial waters of the United Kingdom and any other waters (including inland waters) which are within the seaward limits of the territorial waters and are navigable by sea-going ships. It should here be noted that, whereas for the purposes of certain parts of the Act a mixture containing oil where there are less than 100 parts of oil in 1 mill. parts of mixture is conclusively presumed not to be polluting, there is no such provision applying to the provisions relating to the discharge into the territorial and the other navigable waters. It follows that any discharge into these waters of a mixture containing oil, however slight the amount of oil, is an offence under the Act, unless any of the statutory defences apply. Thus it is a defence to prove that the discharge was not due to any want of reasonable care and that as soon as practicable after the escape was discovered all reasonable steps were taken for stopping or reducing it, or that the discharge was caused by the unauthorised act of a third person. A defence open to the oil industry, but not to the gas industry, is that if the oil or mixture were contained in an effluent produced in refining oil, it is sufficient to say that it was not reasonably practicable to dispose of the effluent otherwise than by discharging it into territorial waters, and all reasonably practicable steps have been taken for eliminating oil.

It is well established that a person whose land abuts on, and is part of the bank of a river or stream, whether tidal or not, is entitled to receive the flow of water past his land without material alteration to its quantity or quality. As Lord Macnaughton said in Young v. Bankier Distillery Co. (1893) A.C. 691:

> 'Every riparian proprietor is thus entitled to the water of his stream, in its natural flow, without sensible diminution or increase and without sensible alteration in its character or quality. Any invasion of this right causing actual damage or calculated to form a claim which may ripen into an adverse right entitles the party injured to the intervention of the Court.'

Riparian Owner's Rights

Thus, the riparian owner has the right not to have his water polluted by trade effluent from a factory upstream or by sewage from a town's sewers. If his water is polluted, then he has a right of action at Common Law against the person causing the nuisance, and this is so whether he has suffered any actual damage or not. He may however deprive himself of that right of action by acquiescing, with full knowledge of the circumstances, to the pollution, unless that pollution amounted to a public nuisance or was in contravention of a statutory prohibition.

Assuming that the riparian owner has maintained his rights, not only may he be awarded damages but the court may make an Order restraining the person who causes the pollution from continuing the nuisance. It will often be difficult, however, for the polluting authority to prevent the pollution immediately—the remedy may involve the construction of extensive works or other measures at considerable expense. In such a case, the court may issue an injunction but suspend its operation for a year or two until the authority has had an opportunity of taking preventive measures.

After the period of suspension has expired the polluting authority may apply for an extension of the suspension, which will normally be granted if it is shown that it has made a genuine effort to deal with the effluent. If no real effort has been made not only will an extension be refused but the polluting authority or its members may be sent to prison. In one case a rural district council submitted in 1950 to an injunction restraining it from allowing insufficiently purified sewage to flow from its sewage works into a particular brook. The injunction was suspended for 18 months to enable it to remedy the trouble. In 1951, about ten months later, the council submitted a scheme to the government department concerned, but in spite of letters, visits to the Ministry, and an approach by a Member of Parliament, the scheme has not been sanctioned. The council then applied for an extension of the suspension period. Harman J. said: 'They have done nothing in 18 months so far as I can see. What do you suggest I should do—put the Chairman of the Council in Brixton? That is the remedy I shall resort to if nothing is done soon. It is no good talking about damages: the ratepayers have to pay. If I put the Chairman of the Council, the Chairman of the Sanitary Committee and the Engineer behind bars we might get something done quicker. I do not propose to have the orders of the Court treated in this way.'

Salmon Killed

In Myddleton v. John Summers & Sons (1953), the defendants had allowed substantial quantities of cyanide to flow into the River Dee and its estuary which had resulted in the killing of salmon migrating up the river, thus depriving the owners of fisheries further up the River Dee of their Common Law rights. The court granted an injunction in the following terms:

> 'This Court doth Order that the Defendants be perpetually restrained from causing or permitting (whether by their servants, workmen or agents or any of them or otherwise howsoever) any liquid or solid substance or other matter containing cyanide to pass either directly or indirectly from the Defendant's premises into the River Dee or its estuary so as by interference with the passage of salmon from the sea up the said river to injure the Plaintiff's fisheries or any of them.'

This case is of importance to gasworks discharging effluent into tidal waters, where reliance is placed on the action of the tide to remove the effluent. It is no defence to an action for nuisance to show that the water has also been contaminated by other persons. So, if the acts of several persons which independently would not cause pollution result in pollution when combined, each may be restrained by injunction.

Nor is it a defence to an area gas board that the discharge of effluent in a particular place is the inevitable consequence of the exercise of their statutory duties. Paragraph 42 of the Third Schedule to the Gas Act, 1948, provides that nothing in that Act is to exonerate an area board from any indictment, action or other proceeding for any nuisance caused by them.

The Public Health (Drainage of Trade Premises) Act, 1937, is of importance when considering the pollution of waters, for it provides an alternative means for the disposal of polluting effluent, and its terms are, as I have mentioned, under critical examination by local authorities. Many of its terms are no doubt familiar, and I will only refer to two matters under this Act. The first relates to what is known as the prescriptive flow, and the second to the charges made by local authorities for the treatment of effluent.

As to the first matter, the general principle of the Act is that trade effluent may only be discharged into the sewers of the local authority with the consent of that authority or as permitted by by-laws which it has made. There is, however, an important exception provided by Section 4 of the Act. This provides that no consent is required to the discharge of any trade effluent from trade premises if any trade effluent of the same nature or composition was lawfully discharged from the premises into that sewer at some time within the year ended March 3, 1937. This exemption only applies if and so long as:—

(a) the quantity of effluent discharged daily does not exceed the maximum quantity lawfully discharged on any one day during the year ended March 3, 1937, and
(b) the rate at which the effluent is discharged is not higher

than the highest rate at which it was lawfully discharged during the same year, and

(c) where the effluent was discharged at any time during the year under an agreement with the local authority, being an agreement which was in force at the end of that year but has thereafter ceased to be in force, the owner or occupier of the trade premises continues to make payments (if any) to the local authority for the reception of the trade effluent as he would have done had the agreement remained in force.

The words 'if and so long as' which control the conditions subject to which the exemption is granted under Section 4, indicate that if any of these conditions cease to be observed the exemption granted by the section disappears. Application in those circumstances for a trade effluent consent must therefore be made.

This does not however mean that the local authority may charge for the whole of the effluent then being discharged. Some local authorities purport to include in their trade effluent consents a condition whereby, although at the moment they are charging only for the excess over the 1937 flow, they may at any time charge the trader for the whole of the effluent discharged. In one case the drafting of the consent is such that the local authority claim the right to charge for the whole of the effluent discharged, even when the volume so discharged is less than the 1937 flow. The words used are 'Provided always that the Council shall be at liberty, if at any time they think fit so to do to require payment—in respect of all the trade effluent so discharged and not merely in respect of the excess—.'

Total Prohibition

Quite apart however from the improper drafting, the Minister of Health, in a case between Granose Foods Ltd., and the Colne Valley Sewerage Board, gave as his opinion that the wording of a subsequent part of the Act, namely Section 5(2), was such as to prohibit a local authority making any charge whatsoever in respect of the 1937 flow even though that flow may have been exceeded. Charges may be made only in respect of the excess.

On what basis are these charges to be made? Opinions differ as to the proper method of charge because opinions differ as to the methods to be used for assessing the relative strengths of particular effluents and domestic sewage. One thing, however, is certain, namely, that local authorities at law are required to bear themselves the cost of receiving and treating domestic sewage and the total of all the 1937 flows from trade premises. Any basis of charge should therefore be designed, however imperfectly, to take account of this financial liabilty of the local authority. The other matter which should be borne in mind is that whatever factor is used to determine the relative strengths of trade effluent from a gasworks and other effluents treated by the local authority, that factor is of importance only when considering the costs attributable to the purification part of the sewage works, e.g., the filter beds or aeration plant. It has no significance when considering the costs attributable to the rest of the sewage works plant, e.g., the detritus tanks, sedimentation tanks, etc. The cost of these should be allocated entirely on the relative volumes. Let me illustrate by an example. A local authority, where the only trade effluent discharged is gas liquor, claim that the relative strengths by the McGowan formula of gas liquor and domestic sewage are 26 and 1 respectively. They also claim that the average cost over the year of treating 1,000 gal. of sewage is 3.87d. per 1,000 gal. They therefore claim that the charge for treating gas liquor is 26 × 3.87d., i.e., 8s. 4d. per 1,000 gal. When the costs are analysed it is found that the cost of purification per 1,000 gal. is 2.5d., the balance of 1.37d. being the cost of the other processes. The charge per 1,000 gal. for treating gas liquor should therefore be 26 × 2.5 + 1.37d. = 5s. 6.37d.

Foremost among changes suggested is that paragraph 32 (1) of the Third Schedule to the Gas Act, 1948, should be repealed, together with any other comparable enactments, e.g., Section 68 of the Public Health Act, 1875. The main purpose of this suggestion is to place area gas boards, *vis-à-vis* pollution, in the same position as other industry. This would have several consequences. Firstly, area gas boards would then be in a position to make the maximum use of any improvements devised for pretreating gas liquor. This they are unable to do at the moment because of the absolute prohibition against all forms of discharge into watercourses contained in the first part of this paragraph. Secondly, area gas boards would then be able to take advantage of any by-laws made by river boards under Section 5 of the Rivers (Prevention of Pollution) Act, 1951. By-laws under Section 5 will merely define pollution for the purposes of the 1923 and 1951 Acts. Until this paragraph is repealed a discharge by an area gas board even though complying with those by-laws, will be illegal. Thirdly, area gas boards inherited from their predecessors many gasworks where the only practicable means of disposing of effluent was, and still is, into an adjacent river or stream. In fact it seems a reasonable assumption that many of these gasworks were sited in their particular positions because of the facilities provided by nature for the disposal of effluent. Certainly the precursors of paragraph 32 exercised no inhibiting effect.

By-laws to be made by river boards will prescribe the standards of pollution for the purposes of the 1951 Act and for the purposes of the Salmon and Freshwater Fisheries Act, 1923. They thus prescribe standards which are relevant only for the purposes of criminal proceedings. They have no relevance in any civil proceedings by riparian owners or others for infringement of their common law rights. We may thus have the position whereby a manufacturing firm has taken every reasonably practicable step to reduce pollution and conforms to the terms of the river board's by-laws. It may be a valuable industry employing many people and providing a valuable service for the public. As the law is at present these maters are irrelevant to any determination of whether or not common law rights have been infringed. The original Rivers (Prevention of Pollution) Bill, provided that any effluent complying with the by-law standards should not, for the purpose of the law relating to nuisance, be treated as being prejudicial to the natural quality or condition of the water, and this provision should be revived. If its effect would be to deprive persons of their common law rights, they should be compensated by the river board from funds provided by the industries whose effluents are being discharged.

While dealing with the question of by-laws might I express the hope that river boards will be realistic when prescribing standards, that they will take advantage of the provisions of the 1951 Act which permits different standards for different parts of the same river and that they will not slavishly apply what are generally called the Royal Commission standards. It is often overlooked that those standards were directed at sewage disposal works and furthermore that they were intended to apply where the volume of sewage effluent was 12½% of the flow of the river. It is difficult to see their relevance in the consideration of the discharge of a trade effluent where the volume of effluent forms a much lower percentage of the flow of the river, other than as a means of prohibiting discharges altogether.

Need for Amendment

The defence available under Section 4(5) of the Oil in Navigable Waters Act, 1955, and applicable only to oil refineries, should be applicable to all industry.

The Public Health (Drainage of Trade Premises) Act, 1937, should be amended to permit a trader to serve a trade effluent notice on adjacent local authorities and not only on the local authority within whose district his trade premises are situated. It is posssible for two adjacent local authorities to agree that one should take all or some of the sewage and effluent from the other. Where this is done no difficulty arises, but it is not always a practicable proposition. Independently of whether or not the local authorities make such an agreement, a trader whose premises are in the area of the second local authority should be able to make an agreement directly with the first local authority or serve a trade effluent notice on that authority. A provision of this nature would be particularly appropriate for the gas industry. Often a large works serving predominantly a particular large town is outside the boundaries of that town. Present developments point more and more to the centralisation of production in large works, often in the areas of small local authorities. A few miles away, however, there may be a large sewage disposal works belonging to a larger authority and capable of accepting some or all of the effluent from the gasworks.

These are the four main changes which I have the temerity to suggest. While dealing with changes may I also offer a comment on the suggestions being put forward in various

quarters that the prescriptive flows under the Public Health (Drainage of Trade Premises) Act, 1937, should no longer be treated free of charge by the sewage authorities. I think this privilege should be maintained. While it may be regarded in some quarters as old fashioned thinking, I subscribe to the view that a ratepayer is entitled to some return for the rates which he pays, that the payment of rates (or indeed taxes of any kind) is not a privilege which he cheerfully enjoys as a means only of conferring benefits on the population at large. He does expect some return himself. The North Western Gas Board's rateable value has increased from approximately £600,000 on May 1, 1949, to approximately £900,000 on April 1, 1957. The rates which they pay have gone up from about £490,000 per year to about £900,000 per year. They have no children to educate, few dustbins to empty. It is reasonable I think for them to ask that at least some of their effluent shall be treated without further charge. The gas industry's position is in this respect completely different from that of industry in general. Industry has been derated by 75% and accordingly makes a small contribution to local revenue. The gas industry has never been in that position.

DISCUSSION

The Chairman, who thanked the speaker for a most interesting talk, said he had two observations to make. The first was that Mr. Smettem had spoken as an individual and not necessarily as the Solicitor to the Board, and the second point which he wished to raise was whether it would be better to pay a few pounds as compensation for the killing of a few salmon rather than spend thousands of pounds on purifiers before discharging effluent. He could not subscribe to this view because he thought that the problem was more than just the killing of a few fish. Indiscriminate pollution of inland waterways would ultimately produce a mass of inland sewers with all the consequences of plague and disease. He suggested that Mr. Smettem might have modified his remarks to say that all effluent should be taken to the local sewage works and treated there before it was discharged into the river.

Mr. Smettem in reply said he was not suggesting that the rivers of this country should continue to be or develop into open sewers. The ideal state would be for every river and stream in the country to be a fisherman's paradise. As, however, we were not living in a Utopia, the problem was what practical steps could be taken to make the maximum use of the rivers of the land. River boards were required to take account, when making by-laws, of the use to which rivers were being put whether for industry, fisheries, water supply, agriculture, transport or navigation. The preservation of fish, while an important matter for the anglers, is not the only or necessarily the most important factor to be considered when making by-laws to regulate pollution.

Certainly rivers which were suitable for fishing today should not be allowed to deteriorate. The standards in those cases should therefore be considerably higher than in those cases where fish were absent because of the heavy discharge of trade effluents into the rivers over the years. These were points which he had in mind when he expressed the hope in his paper that river boards would take a practical view of the situation. It seemed to him in those circumstances that their main efforts should be directed to preserving those rivers where fish were still present. Rivers which were devoid of fish life and which served industry should be dealt with by by-laws recognising that there were many 'non-conforming' effluents which would have to be discharged into the rivers until such time as large scale sewage works extensions were undertaken.

Mr. R. E. White, Junior Vice President of the Yorkshire Association, welcomed suggestions for the change of the law, particularly the idea that the law should be framed to give equality to the gas industry. He thought it was incumbent on all that effluent problems should be handled at source, and that people should modify their standards to definite requirements.

Mr. L. G. Townsend, Group Chief Chemist of the Liverpool Group, recalled that many years ago the Institution of Chemical Engineers reported on the bad state of many estuaries in the country. The position was still bad today and it was his view that vigorous steps should be taken to clean up the estuaries by requiring trades to discharge into the sewers effluents which they were discharging into the rivers. Mr. Smettem replied that he fully supported Mr. Townsend that effluents should be discharged into the local sewers, but this was not always a practicable solution. Area gas boards throughout the country had been actively engaged in putting their effluent house into order ever since vesting date. Probably no industry was so conscious of the effluent problem or had searched more diligently for a solution. Yet there must be many cases in the country where the only practicable solution for disposing of effluent until the works was closed down was to discharge the effluent into a nearby water course. These were inherited problems.

Mr. L. G. Townsend then asked who was responsible for the pollution when two separate effluents from two different traders, each effluent being itself comparatively inoccuous, produced an obnoxious mixture when combined together in the river. Mr. Smettem replied that in those circumstances each trader was responsible for the pollution. In response to a further question from Mr. Townsend, Mr. Smettem replied that the 'prescriptive rights' under the Public Health (Drainage of Trade Premises) Act, 1937, attached to the premises. Thus, if those rights were not exercised for a few years, because gas manufacture had temporarily ceased, the rights would not lapse but could be re-exercised if ever it were decided to begin again the manufacture of gas on that site. The rights related however to effluent produced on that particular site. The Act did not contemplate liquor being carried to such a site from other works and being disposed of into the sewers under the guise of prescriptive rights.

In response to a question from **Mr. W. Ferguson,** of Lancashire Tar Distillers Ltd., Mr. Smettem mentioned that many harbour authorities and inland navigation authorities had their own local legislation controlling the discharge of matter into the waters under their jurisdiction. Concurrently with the jurisdiction of these harbour and inland navigation authorities, there was also the jurisdiction of the river boards. Thus the Manchester Ship Canal was a 'stream' for the purposes of the 1951 Act, and, as such, came within the jurisdiction of the Mersey River Board in pollution matters.

Another questioner asked upon whom was placed the onus for determining the amount of the prescriptive flow under the Act of 1937. Mr. Smettem replied that in the first instance the matter was one for agreement between the trader and the local authority or in the absence of agreement for determination by the Minister of Housing and Local Government and that secondly, under the Act the owner or occupier of the trade premises to which the prescriptive rights were attached must give to the local authority on request such information as the local authority required and as he could reasonably be expected to supply with respect to the discharge. Matters which would assist in determining the volume of the trade effluent would be, in the case of the gas industry the number of tons of coal carbonised on the 'maximum' day, and in the case of all industry the water consumption on the premises.

Physical Circumstances

In reply to a further question as to whether a local authority could be compelled to take and treat gas liquor, Mr. Smettem replied that everything would depend upon the physical circumstances obtaining at the gas works and at the sewage works. If the sewage works had sufficient capacity satisfactorily to treat the effluent then there would seem to him to be no valid reason why the local authority should not accept the effluent on request, or why the Minister should not on an appeal grant consent to the board. There was however a limit to the amount of effluent which any sewage works could satisfactorily treat. Thus, in the absence of any other trade effluent, the generally accepted limit for spent gas liquor was .5% of the dry weather flow. To require the local authority to take more than that figure may result in a breakdown of the bacteriological process. In such a case extensions to the sewage works would be required, the cost of which might be debited against the gas board.

Mr. J. Grayston, General Manager, North Cheshire Group of the North Western Gas Board, proposed a vote of thanks to Mr. Smettem and said he felt sure that the two Associations had derived useful knowledge and information from Mr. Smettem's gentle piloting through the troubled legal waters of river pollution. **Mr. J. Hepworth,** Junior Vice President of the Manchester Association, seconded the vote of thanks.

Industrial Gas Development Committee

BOGIE HEARTH FURNACE FOR ANNEALING WHITEHEART MALLEABLE CASTINGS*

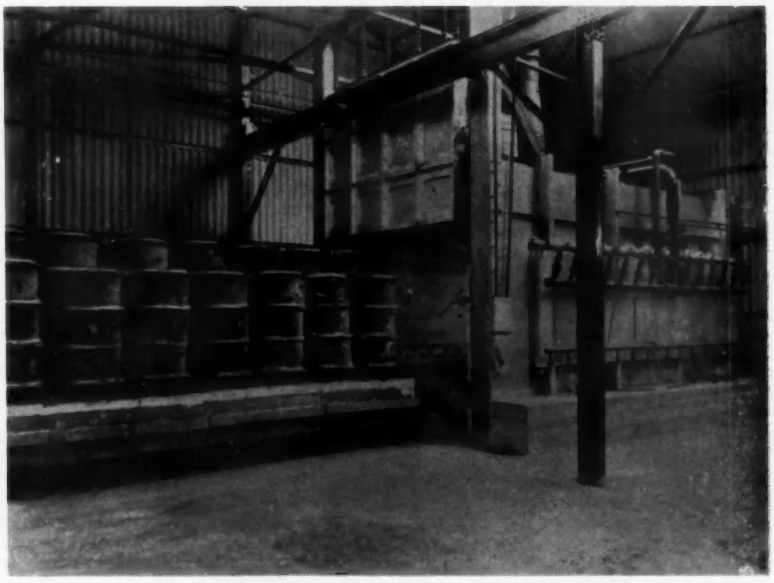
A BOGIE hearth furnace for annealing whiteheart malleable castings has been designed and constructed by Dowson & Mason Ltd. at Ransomes, Sims & Jefferies Ltd., Ipswich. (A previous installation of a portable cover furnace, and used for the same purpose, was described in Report No. 600/55.) The furnace is of the car bottom or bogie hearth type having a width inside the door opening of 9 ft. 3 in. and a height of 6 ft. 3 in. from the flat top of the bogie to the crown of the door arch with a length from door face to back wall of 17 ft. 9 in. The bogie is 9 ft. 0 in. wide by 17 ft. 6 in. long, and takes a charge of 112 pots arranged four in width, eight in the length, with the two outer rows three high and the two inner rows four high. These pots have internal dimensions of 1 ft. 7 in. dia. by 1 ft. 4 in. high which gives a gross loading of approximately 37½ tons, corresponding with 10 tons net loading of castings.

The loaded pots are laid on the bogie and moved into the furnace by means of a Ransomes electric truck. Roller bearings are used for the bogie wheels and axles, and sandseals on the sides and ends of the car prevent the escape of hot gases from the furnace to the under carriage. The sand troughs on the sides and ends are part of the bogie structure which allows them to be filled before entering the furnace, but a further moveable sandseal is arranged at the back of the furnace. The bogie is surfaced with a 3-in. layer of fire brick built above a 6-in. layer of insulating refractory above 3 in. of diatomaceous insulation. Firebrick blocks along the sides and ends serve to retain the refractories and insulation in position.

Because of the intermittent nature of the operation, which requires the furnace to be heated with the load from cold, and then held at temperature, followed by cooling down in the furnace, it is desirable the walls should have a low heat storage capacity. Wherever possible, therefore, light weight insulating refractory has been used, and in the side walls and back this is 9 in. thick with a further 3 in. layer of efficient insulation between it and the steel casing. The whole of the refractories are enclosed in a strong mild steel casing ¼ in. thick, braced with structural steel members.

The door is of the lift up type, arranged for hand operation and fitted with a countershaft carried in ball bearings having seals at the top and bottom, and suitable clamps at the sides. It is lined with insulating refractories and diatomaceous insulation to a total thickness of 9 in., special key bricks tied by vertical rods being used to hold the refractories in place.

The gas burners are of the luminous flame type, firing horizontally from the base of the side walls. There are 14 in number each side, with air and gas being introduced through concentric tubes. Partial mixing takes place at each burner head and behind the high quality Sillimanite refractory baffle tiles; this creates a curtain of flame on either side of the furnace when the burners are at full capacity, and enables a small quantity of heat to pass horizontally below the baffle tiles to provide a gas flow under the pot stands on the bogie. Gas is controlled at a pressure of 3 in. W.G. by a constant pressure governor and air at a pressure of 6 in. W.G. is provided by an electrically driven air blowing fan mounted on the furnace roof.



The hot gases from the burners naturally rise to the top of the furnace and they slowly fall as they give up their heat to the load and the walls of the furnace. The waste gases are exhausted at hearth level through two flues in the door jambs and four in the back wall, the total flue area being so designed to balance the flow to both front and rear. Above the arch of the furnace is a chamber containing a number of thimble calorised steel recuperator tubes into which are inserted small diameter tubes so that the air flowing through the inner tube is made to pass back between the annulus formed between it and the outer tube, and then through an insulated pipe to each burner. The air control valve to each burner is on the inlet side of the recuperator tube. The waste gases pass through a baffled recuperator chamber to a central flue offtake, the height of which terminates 20 ft. 0 in. above the top.

Automatic Temperature Control

The automatic temperature control equipment consists of a Kelvin & Hughes single control pyrometer with a thermocouple inserted through the furnace roof, and a recorder for which a number of thermocouple holes are provided in the side and end walls. To guard against any possibility of failure in the temperature control circuit during long hours when the furnace is left unattended, a second indicating control instrument has been provided. In the event of failure taking place in air pressure, electricity supply, or gas pressure, the furnace shuts down automatically by means of a solenoid valve in the gas line, and it is impossible for the furnace to be restarted until this valve has been re-set by hand.

The process cycle is as follows: Ten tons of castings are packed in pots together with ore and stools weighing approximately 27 tons. This gives a total gross load of 37 tons to be heated from cold to 980°C. in approximately 36 hours, soaked at this temperature for a period of 80 hours, and gradually cooled over a period of 48 hours, being finally withdrawn from the furnace at a temperature of 600°C. The annealing process serves to reduce the carbon content in the iron producing a tensile strength of 25 tons per sq. in. and elongation of 4—10%.

It is interesting to compare the results obtained on this

* Reproduced from Report No. 629/57 of the Industrial Gas Development Committee of the Gas Council (Information supplied by the Eastern Gas Board.)

CUTLERS

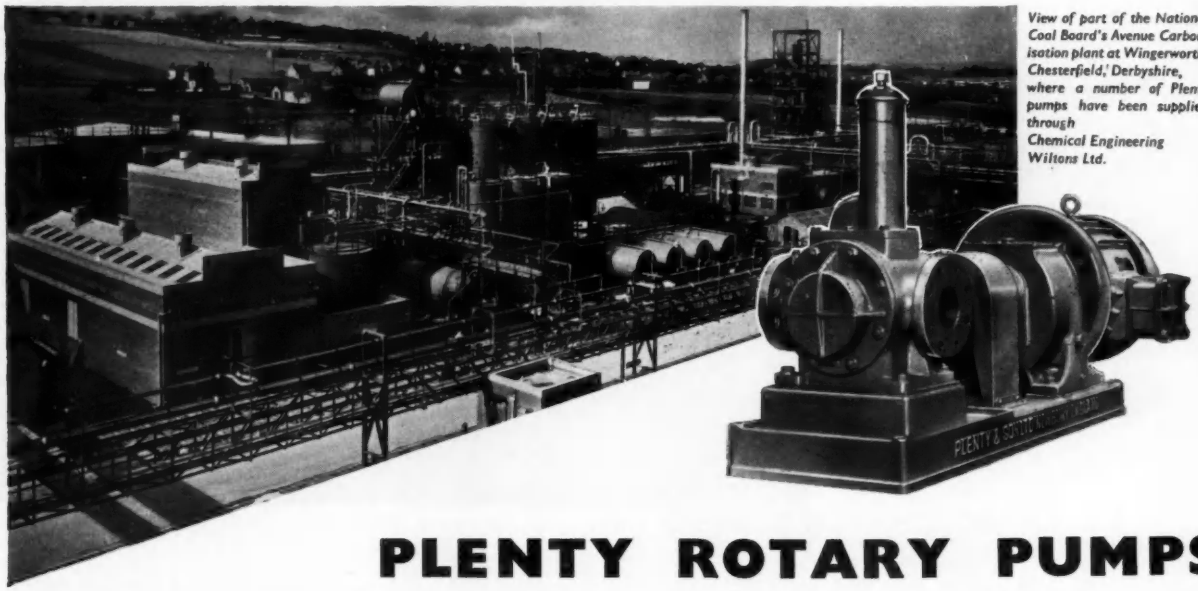
SPECIALISTS IN ALL TYPES OF GASWORKS PLANT AND STEEL CONSTRUCTIONAL WORK

GASHOLDERS
PURIFIERS
CONDENSERS
GAS MAINS
STEEL TANKS

COAL and COKE
HANDLING PLANT
GENERAL STEEL
CONSTRUCTIONAL
WORK

SAML. CUTLER & SONS LTD.

70 VICTORIA STREET, WESTMINSTER, S.W.1. **LONDON** PROVIDENCE IRON WORKS, MILLWALL, E.14.



View of part of the National Coal Board's Avenue Carbonisation plant at Wingerworth, Chesterfield, Derbyshire, where a number of Plenty pumps have been supplied through Chemical Engineering Wiltons Ltd.

PLENTY ROTARY PUMPS

Wherever difficult materials have to be handled, there you will find Plenty pumps doing the job with efficiency and economy. Our wide experience of Gas Industry problems enables us to find a practical solution to meet most technical requirements. Do not hesitate to write. Enquiry entails no obligation.

PLENTY PUMPS

PLENTY & SON, LTD., Newbury, Berks.

Also makers of FILTERS, MIXING MACHINES and MARINE ENGINES

Telephone: NEWBURY 7 & 1770
Telegrams: PLENTY, NEWBURY

J.G.

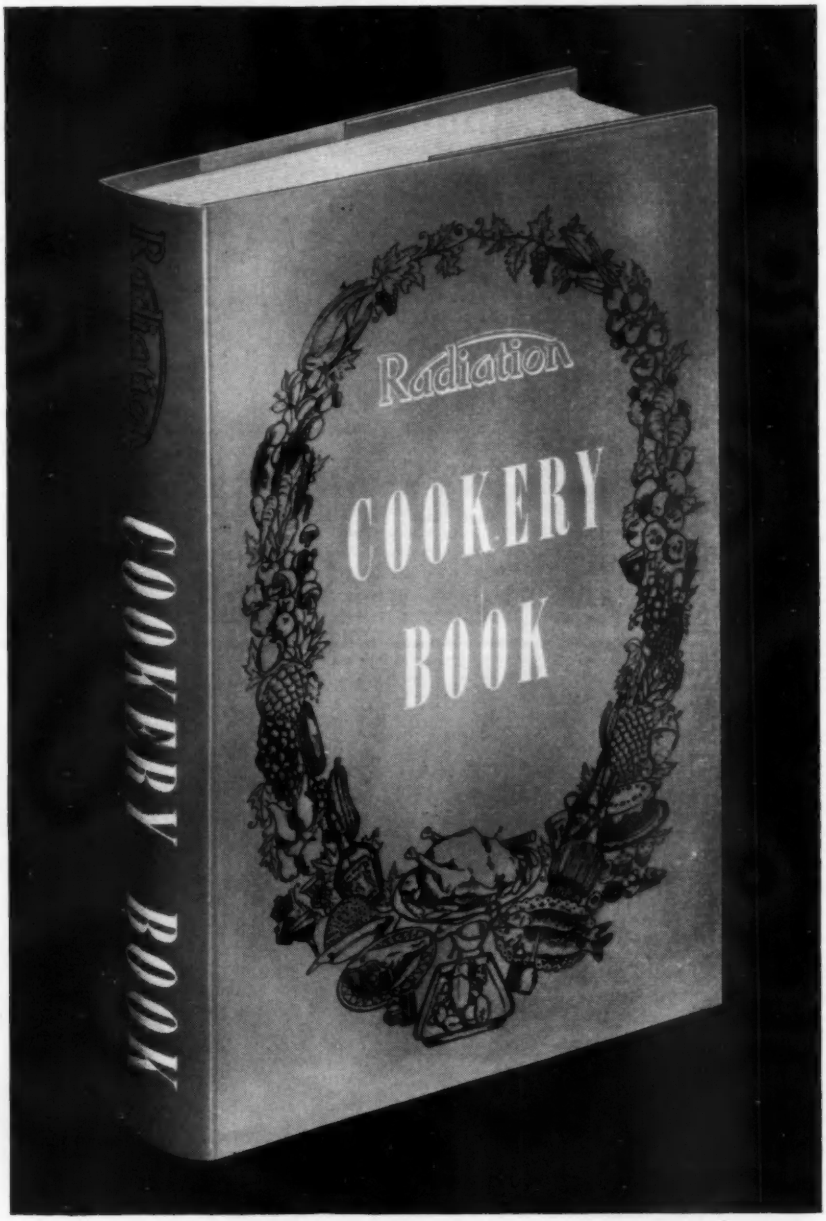
WONDERFUL VALUE!

OVER 500 PAGES

16 FULL COLOUR PLATES

HIGH QUALITY PAPER

STRONG CLOTH BINDING



RETAIL SELLING PRICE **9/6**

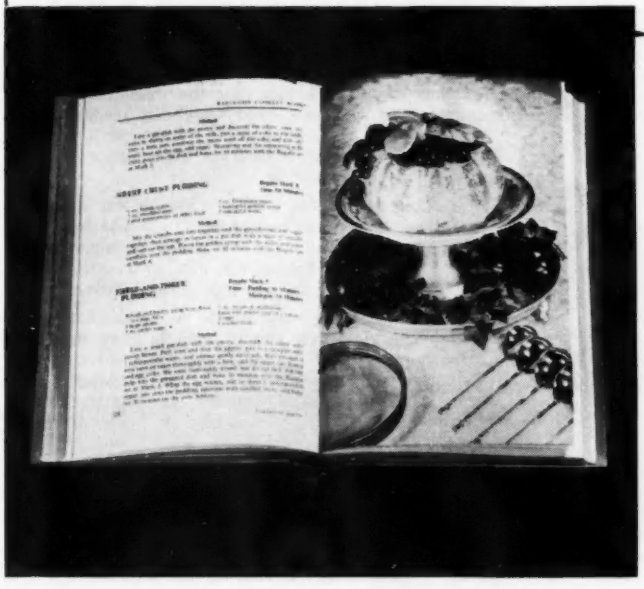
THE DE LUXE
Radiation Cookery Book

ARRANGED IN 24 SECTIONS

HORS D'OEUVRES
SOUPS
FISH
MEAT
POULTRY AND GAME
VEGETABLES
SALADS
CHEESE, EGG AND
VEGETARIAN DISHES
PASTRY AND
SWEET PASTRY DISHES

PUDDINGS,
HOT AND COLD SWEETS
SAVOURIES
SAUCES, DRESSINGS, STUFFINGS
AND COATING BATTERS
WHOLE DINNER MENUS
INVALID COOKERY
BREAD, ROLLS,
YEAST MIXTURES AND SCONES
CAKES
Large Cakes, Small Cakes and Buns,
Biscuits, Sponge Mixtures

ICINGS,
FILLINGS AND SWEETMEATS
PRESERVES
Jams, Jellies, Marmalades, Pickles
FRUIT BOTTLING
BEVERAGES
CARVING
WINES
SPICES, HERBS AND
FLAVOURINGS
GLOSSARY OF KITCHEN TERMS



THE DE LUXE RADIATION COOKERY BOOK is offered in addition to the standard Radiation cookery book which is now in its 48th edition.

to help you sell

NEW WORLD
PRODUCT OF Radiation Ltd

RADIATION GROUP SALES LTD., 7 STRATFORD PLACE, LONDON, W.1. TEL: MAYFAIR 6462

bogie type annealing furnace with those of the portable cover furnace, which was the subject of report No. 600/55.

It is obvious that as the furnace gets larger the wall area is reduced per ton of load, which has, therefore, a material effect upon the gas consumption. Furthermore, the portable cover furnace has a hood of 9 in. of insulating refractory, whereas the bogie furnace has side and end walls of 9 in. insulating refractory plus 3 in. of efficient slab insulation. A still further difference is that in the portable cover furnace the recuperator tubes are heated, not only by the waste gases of combustion, but also by conduction through the hearth brickwork, whereas in the bogie furnace almost the entire heat absorbed by the recuperator tubes is from the waste gases alone. Further details of results are given in Table 1.

Normal Loads

All heats normally comprise a load of 112 pots, and, in general, it can be assumed that the furnace has to cope with a gross load of 36—37 tons. The net weight of castings can, however, vary between 8 and 11 tons, dependent upon weight/volume ratio (some castings may be hollow), and variation of shapes and cross sections.

TABLE I
OPERATING RESULTS AND THERMAL YIELD OF BOGIE HEARTH ANNEALING FURNACE

	Heat No. 1	Heat No. 38	Heat No. 68	Total & average of three other heats	Total & average of six heats
	tons	tons	tons	tons	tons
1. Gross wt. of charge ..	37	36	33	108	214
2. Net wt. of castings ..	10	10	9	30	59
	cu. ft.	cu. ft.	cu. ft.	cu.ft.	cu. ft.
3. Gas consumption to reach annealing temp. 980°C	193,750	101,600	104,300	—	—
4. Gas consumption during soaking period at 980°C	104,140	97,200	104,400	—	—
5. Total gas consumption	297,890	198,800	208,700	653,100	1,358,490
6. Gas consumption per gross ton	8,050	5,520	6,330	6,100	6,350
7. Gas consumption per net ton	29,800	19,880	23,188	21,770	23,025
8. Calorific value ..			450 B.t.u/cu. ft.		
9. Therms per net ton ..	134 Therms	89 Therms	104 Therms	98 Therms	104 Therms

Operational Land of Statutory Undertakers

By a Legal Correspondent

THE Town Planning Act of 1947 contains special provisions affecting the 'operational land' of statutory undertakers. The High Court has recently given an important decision as to what constitutes 'operational land' for this purpose in the case of R. v Minister of Fuel & Power ex. p. Warwickshire County Council. In this case a Gas Board was directly concerned, but the decision given by the Court is one which will affect all statutory undertakers. Having regard to the definition of 'statutory undertakings,' the classes of authorities who are affected include gas, electricity, power, water, railway, transport, navigation, dock and harbour undertakings.

Before considering the above decision, it may be as well to draw attention to some of the more special provisions in the Town and Country Planning Act, 1947, which affect statutory undertakings. S.84 of the Act of 1947 is the material section and some of its provisions place the operational land of statutory undertakers on the same footing as land belonging to local authorities for the purpose of their functions (subject to certain exceptions). Thus such land was exempted from the payment of development charge, and correspondingly it was deprived of any claim on the £300 mill. compensation fund for loss of development rights. Development charge in any case has now gone, and with it to a large extent claims for such compensation. Again the provisions as to the assessment of compensation for the compulsory acquisition of such land are of importance. It is to be assumed in determining the compensation, that planning permission for a use which prevails generally in the case of contiguous land would be given. The further provision as to the assumption that no development charge was to be payable, appears however to have ceased to have any practical importance at the present time.

To deal now with the question as to what constitutes 'operational land.' The expression is defined in S.119(1) of the Town Planning Act of 1947, as meaning land 'which is used for the purpose of carrying on the undertakings' of the undertaking in question and land 'in which an interest is held for that purpose.' The definition, however, *excludes* land 'which, in respect of its *nature* and *situation* is comparable rather with land in general, than with land which is used, or in which interests are held, for the purpose of the carrying on of statutory undertakings.'

In the above case, the West Midlands Gas Board applied to the Warwickshire County Council for planning permission to erect a gasification plant on the Board's land, which was on the outskirts of Birmingham and which was being used for agricultural purposes. The permission being refused, the Board appealed under S.16 to the Minister of Housing, claiming that the land was 'operational land.' The question was then referred, pursuant to S.119(2) of the Town Planning Act of 1947, to the appropriate Minister for the undertaking concerned, who in this case was the Minister of Fuel. The Minister of Fuel held that the land was 'operational land,' and gave as his reasons that the expression was not to be restricted to land upon which a statutory undertaking had already commenced operations. And he further held that the concluding part of the definition was not to be construed as implying that in order that a particular piece of land should be operational, it was necessary that the undertaking, in this case the Gas Board, should own contiguous or adjacent land which was used for the purpose of its undertaking. The Minister further found as a fact that the land, though used as agricultural land, was not land which in respect of its nature and situation was comparable rather with land in general than with land which is used for the purpose of carrying on of statutory undertakings.

It is to be observed that the land in question was a field on the very edge of a large industrial area. It was separated and screened, though ineffectively, by a belt of trees from a very large power station. Behind the belt of trees there was a railway, a waterway and various industrial buildings.

The Court confirmed the view of the Minister that it was not necessary that operations should already have begun on the land for the purpose of the undertaking, in order that the land should be 'operational.' Statutory undertakers often acquired more land than they required immediately for the purpose of their undertaking, the remainder of the land being intended for further development in the future, and such land in the view of the Court could equally rank as 'operational.'

The latter part of the definition, as already stated, excludes land which is comparable with other land in general, rather than with land on which statutory undertakings are carried on. The question of whether the land fell into the one or into the other category was in the view of the Court a question of fact. In this case the Minister's Inspector had viewed the land and had found as a fact that the land, though agricultural, was not comparable with other agricultural land in general, but that it compared rather with land used for the purpose of statutory undertakings. There was no material on which the Court could disturb the finding of fact.

In this connection, moreover, the further point decided by the Court was that for the purpose of the above comparison, it was not necessary that the land should be compared with land which was contiguous or adjacent, and the fact that the Board did not have any contiguous or adjacent land was immaterial.

The Court accordingly affirmed the decision of the Minister and held that the land was operational land.

PEART of HYDE

THE PEART (PATENT)
LEADLESS SPLIT COLLAR

PATENT NO. 733220

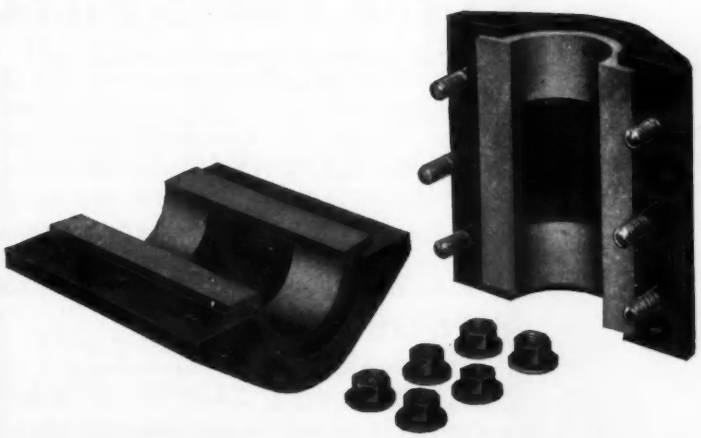
★ PATENT MOULDED RUBBER JOINTS, RUBBER CONFORMING TO B.S.S. 772.

★ GUARANTEED SEAL WITHOUT USING LEAD

★ EASILY TRANSPORTED.

★ ONE SPANNER ONLY REQUIRED.

★ CAN BE FITTED IN TEN MINUTES.



★ CAN BE SUPPLIED WITH OR WITHOUT BOSS.

★ DRILLED AND TAPPED ¼"-2" B.S.P. IF REQUIRED.

★ TESTED UP TO 350 lbs. p.s.i. HYDRAULIC PRESSURE.

E. PEART & CO. LTD.

ONWARD WORKS · HYDE · CHESHIRE

TELEPHONE: HYDE 3545/6

THOMAS BUGDEN & CO.

India-Rubber and Airproof Manufacturers and General Contractors.
LARGEST MANUFACTURERS OF GAS MAIN BAGS.
Telegrams—"AIRPROOF, BARB, LONDON." Telephone—6147 CLERKENWELL

Contractors to H.M. Government

Gas Bags for Repairing Mains

PATENTEES OF THE
DENMAR BAG
Impervious to Main Liquor and Climatic Influences.

Pull-through and Expanding MAIN STOPPERS.

All types of INDIA-RUBBER BOOTS.

DRAIN RODS AND WHALE-BONE BRUSHES.

HOSE AND TUBING FOR ALL PURPOSES.

Round or Cylinder Shape.

Contractors' & Miners' Woollen Jackets, Trousers, Hats, &c.

Stokers' Mitts and Gloves of every description.

244, Coswell Road, LONDON, E.C.1.

FROM STOCK

4 in. Reconditioned Cast Iron Flanged Pipes 9 ft.

VALVES for GAS, WATER and STEAM

Sizes ¼ in. to 36 in. in C.I., gunmetal and steel.

STEEL TUBES

All Sizes up to 24 in. Flanged, Plain ends, Screwed and Socketed, Loose Flanged, Victaulic and Unicone Joints.

Midland Iron & Hardware Co., (Cradley Heath) Ltd.,
CRADLEY HEATH, STAFFS.

Telephone: Cradley Heath 6264-5-6. *Telegrams:* Pipes, Cradley Heath.

WESTWOOD & WRIGHTS LIMITED

BRIERLEY HILL, STAFFS.

GASHOLDERS · PURIFIERS · WASHERS
CONDENSERS · CASTINGS · STEELWORK
GAS VALVES · WELDED PIPES

BUCKLERSBURY HOUSE TO STAND ON

3,500 BORED PILES

This important Office Building in the City of London, 17 storeys high including the basement floors, is supported on Cementation Bored Piles. Approximately 3,500 were constructed well within the contract time despite the fact that delays were unavoidably occasioned by the deliberations on the fate of the Mithras Temple discovered on the site and other major difficulties inevitable on such a large site.

The construction of a surrounding wall to retain the adjoining Queen Victoria Street, Cannon Street and Bucklersbury was greatly facilitated by the use of our bored piles.

The close proximity of important buildings including the Mansion House and services such as the Underground Railway made it necessary to reduce noise, vibration, etc., to an absolute minimum.

The CEMENTATION COMPANY LIMITED

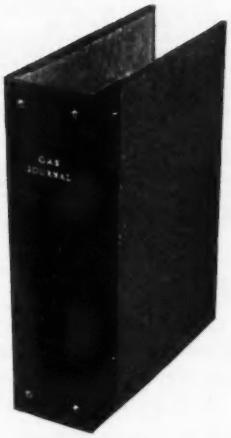
Head Office: 20 Albert Embankment, London, S.E.11. Telephone: RELiance 7654

Mining Dept : BENTLEY WORKS, DONCASTER. **Tel. : 54175 and 54136**

Bind your JOURNAL each week

No loose copies to be mislaid

We offer Journal readers a simple method of temporarily binding their copies as received week by week. No time lost searching for a particular issue; Journals removed and replaced in a few seconds. Designed to hold 13 issues, and whether completely or only partially filled the book effect is always maintained.



Gold lettered on the spine complete with instruction sheet.

Price 12/6 each plus 9d. postage.

Obtainable from:

WALTER KING, Ltd., 11, Bolt Court, Fleet St., London, E.C.4

GAS METER CRANKS

Telephone: DUNSTABLE 90

The Clifford Engineering Co., Ltd.

Dunstable, Beds.

Specialists for over 35 years

Single and double throw cranks for all meters

EWART CHAINBELT CO., LTD

DERBY, ENGLAND

Driving and Conveyor Chains of the best quality; made of Ley's Celebrated Blackheart Malleable Iron.

ALSO COMPLETE CONVEYORS AND ELEVATORS

PUBLISHERS' NOTICE

The " Gas Journal " is published every Wednesday, price 1/6d.; by post 1/8d.

Subscription Rates : Home 65/–; Overseas (from Sept 1, 1957) 72/6 per annum; (Both payable in advance.) A copy of the " Gas Journal " Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 2/6 per line (approx. 7 words)—minimum charge 10/–. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements: Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10 in. deep × 7 in. wide; block screen 120.

BUSINESS MANAGER: S. T. CULLEN

NORTHERN MANAGER: Philip W. B. King, 11, Tewit Well Road, Harrogate. *Telephone:* Harrogate 69212.

SOUTHERN & MIDLANDS REPRESENTATIVE: A. Engelhardt, T.D., 11, Bolt Court, Fleet Street, E.C.4. *Telephone:* Fleet Street 2236-7.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.

Telephone: FLEet Street 2236-7. *Telegrams:* Gasking, Fleet, London.

OXIDE

DUTCH AND DANISH BOG ORE
SPECIALLY ACTIVATED OXIDE OF IRON

Oxide supplied on loan or sale outright.
Highest prices paid for Spent Oxide.

Send your enquiries to

GAS PURIFICATION LIMITED

PALMERSTON HOUSE, BISHOPSGATE, LONDON, E.C.2.

Telegrams: "Purification, Stock, London" Telephone: London Wall 7938/9 & 7930

"KLEENOFF" ★
THE COOKER CLEANER

"KLEENOFF"
FIBRE BRUSHES
RUBBER MOPS

"KAY-DEE" ★
KETTLE DESCALER

for resale to the public and in bulk for works use

BALE & CHURCH, LTD.
CROMPTON WAY, CRAWLEY, SUSSEX

GAS ACCOUNT CALCULATORS

FOR ORDINARY OR PREPAYMENT METERS, ANY CALORIFIC VALUE, OFFICE SIZE OR POCKET CHARTS

ENQUIRIES INVITED

F. H. WAKELIN LTD.
Chocolate Specialists

354, WHEELER ST., BIRMINGHAM, 19
'PHONE NOR. 0989

THE BRITISH GAS PURIFYING MATERIALS CO., LTD.

NATURAL BRITISH.
BOG (DUTCH and DANISH) ORE.
SPENT OXIDE.

LONDON ROAD, LEICESTER.

Telegrams: "BRIPURIMAT"
Telephone: 59086

PATENTS

KINGS PATENT AGENCY, LTD.
(Director, B. T. King, A.I.M.E., Patent Agent) Advice, Handbook, and Consultations free. 146a Queen Victoria Street, London, E.C.4, 'Phone: City 6161.

PLANT &c. FOR SALE

SPECIAL OFFER: 12 in. loose flanged tube in 18 ft. lengths, complete with joint rings, nuts and bolts. Reconditioned material. Delivery ex stock. Midland Iron & Hardware Co. (Cradley Heath) Ltd., Cradley Heath, Staffs. Tel.: Cradley Heath 6264-5-6.

CAPACITY AVAILABLE. — SYPHON POTS, SURFACE BOXES and GAS WORKS CASTINGS. Specialists to Gas Boards throughout the British Isles. Berry's Foundry (1949), Ltd., Hammerton Street, Bradford, 3. 'Phone 27701.

APPOINTMENTS VACANT

CITY OF INVERCARGILL GAS DEPARTMENT

INVERCARGILL, NEW ZEALAND
WORKS SUPERINTENDENT

APPLICATIONS are invited for the above position at the Invercargill Works, which has a new I.V.C. Plant by Woodall-Duckham of 300,000 cu.ft. per day capacity also a ¼ million per day C.W.G. Plant by Power Gas. Applicants are required to have a sound technical traning in Works control and to be familiar with all aspects of Gas Works practice, including the performance of routine chemical tests. Ability to handle men and all round versatility are absolute essentials.

A knowledge of Gas Distribution is desirable.

Commencing salary is £900 per annum, rising to £1,000 per annum by two annual increments.

Applications giving details of age, education, training, experience and qualifications, together with not less than two recent Testimonials, also a recent photograph, should be addressed to the undersigned.

W. M. TAYLOR,
Gas Manager.

SOUTH EASTERN GAS BOARD

HOME SERVICE ADVISER
METROPOLITAN DIVISION
(SOUTH-EAST LONDON AREA)

THE successful applicant will be required to conduct demonstrations, give lectures and advise consumers in their own homes in the use and care of gas equipment.

Applicants must have undergone training for two years at a recognised training college of Domestic Arts and hold a diploma in cookery, housewifery and laundry work.

Salary, 21 years of age and over, £439-£664 p.a., rising to £750 p.a., according to experience.

Applications, quoting reference V10/829, should reach the Personnel Manager, South Eastern Gas Board, Katharine Street, Croydon, within seven days.

NORTHERN GAS BOARD

(TYNESIDE DIVISION)
ASSISTANT WORKS MANAGER—ELSWICK WORKS

APPLICATIONS are invited for the position of ASSISTANT WORKS MANAGER of the Elswick Works at a salary within Grade APT. 12 (£945-£1,070 per annum) of the National Salary Scales for Gas Staffs.

The Elswick Works is one of the major production stations in the Division and employs modern C.V. Retorts and ancillary plant, the works having a total capacity of 10 million per day.

Applicants should have had a wide experience in the control of modern works, be Corporate Members of the Institution of Gas Engineers and preferably have extensive experience of Continuous Vertical Retorts, Carburetted Water Gas Plant and all types of pressure raising plant.

The successful applicant will be required to pass a medical examination and to join the Board's Pension Scheme.

Applications, stating age, qualifications and experience, together with the names of two referees should be submitted to the undersigned not later than August 31, 1957.

W. SUTCLIFFE,
Divisional General Manager.

30, Grainger Street,
Newcastle-upon-Tyne.
July 26, 1957.

EAST MIDLANDS GAS BOARD

LEICESTER AND NORTHANTS DIVISION

GASFITTER (resident) required for Syston district.

Syston is located some five miles from Leicester.

There will be available a modern self-contained flat (two bedrooms) situated over the Board's showroom in Syston. The occupancy will be subject to the terms of a standard Service Occupation Agreement.

Applications stating age, present position and experience, together with the names of two referees, should be submitted not later than August 24, 1957, to—

Divisional General Manager,
Gas Offices, Millstone Lane, Leicester.

EAST MIDLANDS GAS BOARD

GASFITTER/GRID CONTROL ATTENDANT—KETTERING

APPLICATIONS are invited from first class ga fitters for appointment as GASFITTER/GRI CONTROL ATTENDANT at Kettering.

A compact, four-bedroomed house adjacent to th Holder Station (Kettering is a non-manufacturi Undertaking) is available under the terms of standard form of Service Occupation Agreement.

The person appointed will be required to undertak certain grid control/holder station standby duties, an to participate in a rota for district emergency wor Appropriate payments will be made for these add tional duties.

Applications stating age and present position, an giving details of qualifications and experience, togeth with the names of two referees, should be submitte to Mr. D. A. Foster, Group Manager, Commerci Place, Wellingborough, not later than August 2 1957.

H. B. TAYLOR,
Divisional General Manager.

Leicester.
July, 1957.

WEST MIDLANDS GAS BOARD

WOLVERHAMPTON & DISTRICT DIVISION
ASSISTANT GROUP DISTRIBUTION SUPERINTENDENT, CENTRAL GROUP

CANDIDATES should have a sound knowledge o high and low pressure gas distribution an main and service laying by direct and contractor labour. There are 430 miles of mains in the Group

The possession of the Higher Grade Certificate Gas Supply of the Institution of Gas Engineers its equivalent will be an advantage.

The salary will be within APT. Grade 8 (£745-£8 p.a.) of the National Salary Scales.

The post is pensionable and the successful candida may be required to pass a medical examination.

Applications, stating age, qualifications and e perience, should be addressed to Mr. S. Jone Divisional General Manager, West Midlands G Board, Kensington House, Bath Street, Dudley, **reach him not later than August 16, 1957.**

J. SWAN,
Secretary to the Boar

WEST MIDLANDS GAS BOARD

WALSALL AND DISTRICT DIVISION
SENIOR TECHNICAL ASSISTANT, SMETHWICK DISTRICT

THE duties will entail supervision of the operatio of two Continuous Vertical Retort Houses wit a combined production of 7.5 mill. cu.ft. of gas p day, with direct responsibility to the Senior Assista Engineer.

The duties will not be confined solely to the Reto Houses but will involve from time to time, duti connected with the production of C.W.G. and ga works ancillary plant.

The candidates should be Associate Members of th Institution of Gas Engineers and have had technic experience in gas production and the control o labour.

The salary for the post will be within APT. Grad 10 (£860-£960 per annum) of the National Sala Scales.

The post is pensionable and the successful cand date may be required to pass a medical examinatio

Applications, stating age, experience, positions he and qualifications should be addressed to Mr. Harvey, Divisional General Manager, West Midlan Gas Board, Walsall Factory Estate, Tame Bridg West Bromwich Road, Walsall, to reach him n later than August 17, 1957.

J. SWAN,
Secretary to the Boar

WEST MIDLANDS GAS BOARD

WARWICKSHIRE DIVISION
VACANCIES FOR TWO TECHNICAL ASSISTANTS—COVENTRY DISTRICT FOLESHILL WORKS

APPLICATIONS are invited for the above appoint ments from candidates conversant with gaswork routine tests and preferably having experience of con tinuous vertical retorts and carburetted water ga plants.

Applicants should be Associate Members of th Institution of Gas Engineers or possess an equivalen qualification.

The salary for the posts will be in accordance wit APT. Grades 6/7 (£640-£785 per annum) of th National Salary Scales.

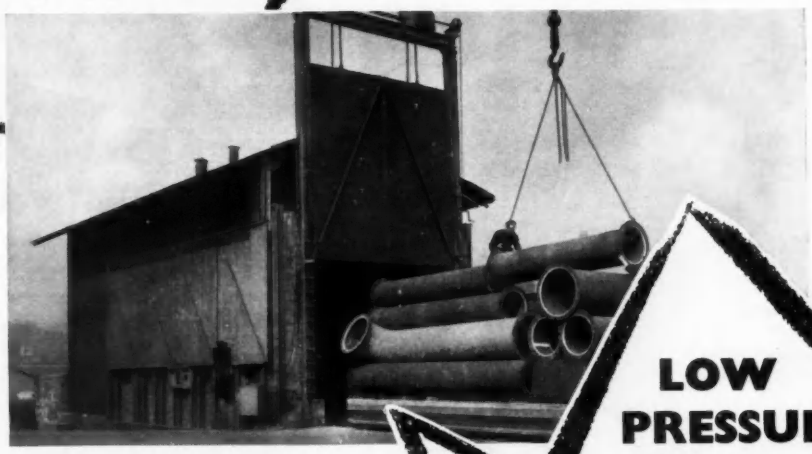
Applications stating age, qualifications and ex perience should be addressed to A. Allen, Esq., Divi sional General Manager, West Midlands Gas Board Gas Street, Coventry, to reach him not later tha August 17, 1957.

J. SWAN,
Secretary to the Board

Deliveries are better now!

GAS CONNECTIONS

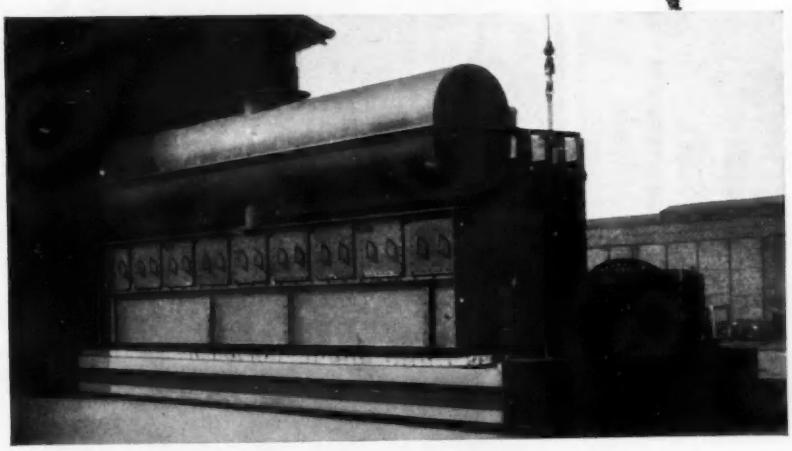
from 12″ to 48″ dia.



1″/4, 5″/16, 3″/8, 1″/2 AND 5″/8″ PLATE AVAILABLE

LOW PRESSURE VESSELS AND STORAGE TANKS

up to 10′ dia. and 40′ long.



Owing to greatly improved production facilities and the availability of ¼″, 5/16″, ⅜″, ½″ and ⅝″ plate, deliveries of fabricated steelwork have been greatly speeded up. All enquiries will be given immediate attention.

A Stress relieving service is also available

FOUNDED 1850 HOLMES HUDDERSFIELD

W. C. HOLMES & CO. LTD.

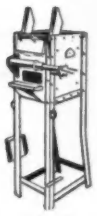
HUDDERSFIELD · LONDON · BIRMINGHAM

Huddersfield 5280 London: Victoria 9971 Birmingham: Midland 6830

C0300

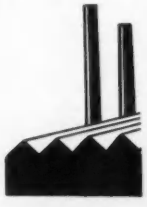
A. H. WILKES & CO.

THE NAME IN INDUSTRIAL GAS EQUIPMENT



HOT BRASS STAMPING FURNACE

PORTABLE FORGE



P 3024 NORMALISING FURNACE

Extensively used by leading steel and pipe manipulators. Standard patterns for pipes ½" to 30" dia. Complying with B.S.S. 1821, 1952. Larger sizes can be quoted for against specification.

'ALCOSA'
PRODUCTS INCLUDE:-
Blowers, brazing equipment, gas and oil burners, furnaces, portable forges, soldering and tinsmith equipment, etc.

A. H. WILKES & CO.
A SUBSIDIARY OF WILLIAM ALLDAY & CO. LTD.

ALCOSA PRODUCTS

Head Office: **"ALCOSA" WORKS, STOURPORT-ON-SEVERN, WORCS.**
Telephone: Stourport 2311-4 Telegrams: 'YADALL', Stourport
London Office: 158 Birchanger Rd., S. Norwood, S.E.25. Tel.: Addiscombe 1162 and 1295

CRANE

VALVES for Gas, Steam, Water, Oil and Air

Lost hands or full production? Dermatitis — the cause of more lost man-hours than any other industrial disease —can be avoided simply by using Rozalex. For over 25 years Rozalex have specialised in barrier creams for industry. They have found the answer to most industrial skin irritants. The full technical resources and experience of Rozalex are at *your* disposal on request to Rozalex Ltd., 10 Norfolk Street, Manchester 2.

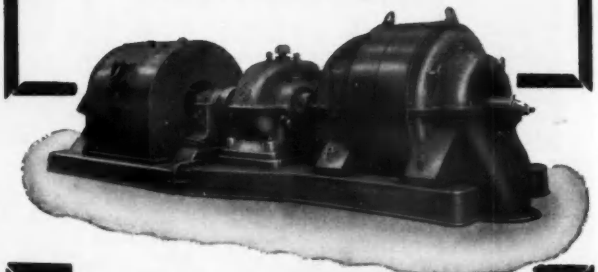
ROZALEX
BARRIER CREAMS

R87C

TURBO-COMPRESSORS & EXHAUSTERS
FOR AIR AND GAS

★ ★ ★

We build a complete range of Compressors & Exhausters for air and GAS, suitable for all purposes connected with the GAS industry, including Turbo-Compressors for large capacities, as illustrated below



WRITE FOR PAMPHLET No. 1018 GIVING PARTICULARS—

REAVELL & CO., LTD.,
RANELAGH WORKS, IPSWICH.
Telegrams: REAVELL, IPSWICH Telephone: 2124 & 5.

DESIGN

FABRICATION

ERECTION

in one

WEST'S

GLOVER-WEST CONTINUOUS VERTICAL RETORTS · C.O.L. INTERMITTENT VERTICAL CHAMBERS · COLLIN COKE OVENS

WEST'S GAS IMPROVEMENT COMPANY LIMITED
ALBION IRONWORKS, MILES PLATTING, MANCHESTER 10
TEL: COLLYHURST 2961 TELEGRAMS: STOKER, MANCHESTER
London Office: Columbia House, Aldwych, W.C.2
C.O.L. Div.: Chandos House, Buckingham Gate, S.W.1

PL 2

'ECONOMIC'
by
name

...ECONOMIC
by nature

Today's ever-soaring
fuel costs are your biggest reason
for installing a Paxman Boiler.
You will undoubtedly find the best for your purpose in
our latest colour-illustrated catalogue,
wherein modern design combining higher efficiency with lower
fuel consumption is the keynote.
Write for it today.

Paxman

ECONOMIC · ULTRANOMIC · STEEL SECTIONAL · PACKAGED WATER TUBE

DAVEY, PAXMAN & CO LTD
COLCHESTER · ENGLAND
Telephone: Colchester 5151
Telegrams: Paxman, Colchester
Telex: 27-2678

Boilers

MAKERS ALSO OF DIESEL ENGINES, ROTARY VACUUM FILTERS AND HEAVY FABRICATION WORK

855